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ABSTRACT

The Connecticut Academy for Education implemented the School Improvement Support Team (SIST) in the Waterbury, Connecticut, Public Schools during the 1998-99 school year. The main goal of the SIST is to provide a comprehensive and cohesive set of programs and activities for improving student performance in the Waterbury Public Schools. The Connecticut Academy for Education had provided assistance with curriculum development to the school system for the 3 previous years. The SIST's educational consultants worked with administrators and teachers in seven elementary schools. With a specific focus on assessment, mathematics, and language arts, the SIST provided strategic data-based technical assistance to teachers to foster academic achievement. The preliminary evaluation indicates that the SIST offers the Waterbury schools a new and innovative approach to improving key program areas, as evidenced by the recent inclusion of 7.5 additional days in the teachers' contract for professional development. The SIST is making the Waterbury public schools more responsive to prevailing conditions, trends, and changes related to student performance and staff development. SIST received an overall 60% performance rating from the district's teachers and administrators, with strong agreement among teachers, administrators, and SIST consultants about the strengths of the initiative and its startup problems. The appendix contains the principals', assistant principals', and teachers' surveys. (Contains 28 figures.) (SLD)

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Waterbury Public Schools
and
Connecticut Academy for Education

School Improvement Support Team
SIST

EXTERNAL EVALUATION STUDY
JUNE 30, 1999

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Waterbury Public Schools
and
Connecticut Academy for Education

School Improvement Support Team
SIST

EXTERNAL EVALUATION STUDY
JUNE 30, 1999

Executive Summary

INTRODUCTION

In fall 1998, the Connecticut Academy for Education retained Curriculum Research & Evaluation (CRE) for the purpose of conducting an external evaluation of the School Improvement Support Team (SIST), which the Connecticut Academy implemented in Waterbury Public Schools, during the 1998-99 school year. The main goal of SIST is to provide a comprehensive, cohesive set of programs and activities for improving student performance in Waterbury Public Schools. The Connecticut Academy was a good choice for this contract because of its excellent reputation statewide for systemic reform of education and because it had provided assistance with curriculum development to Waterbury Public Schools during the previous three years.

The Connecticut Academy's SIST team began work with building principals on December 5, 1998. School-based work began in mid-January 1999. The Connecticut Academy's total contract cost for SIST—including fees for personnel, activity, bus transportation, and substitute teacher reimbursement—is $152,309.02.

More specifically, SIST's educational consultants would collaborate with administrators and teachers in seven identified elementary schools (Pre-K to 5 and K-5); align work to and be consistent with the work done during the 1997-98 school year by the Connecticut Academy; review identified schools' instructional programs measured by existing student performance data and give special attention to making the district's instructional practices, assessment across grade levels, and identification of resource allocation practices at the elementary schools consistent with and supportive of the state curriculum frameworks; and work with the Waterbury Public Schools administration to analyze staffing expertise and student mobility issues. SIST's specific areas for focus are assessment, mathematics, and language arts. Thus, SIST would provide strategic, data based technical assistance to teachers, in order to improve students' performance with academic skills, especially mathematics and language arts, as measured by the Connecticut Mastery Test (CMT).

Until recently, Connecticut's school administrators did not have the opportunities for strategic planning and decision-making that are now available to them. Historical analysis of 1993 to 1998 CMT student performance data is a powerful new tool for school administration. Hence, SIST offers Waterbury Public Schools administration a new and an innovative approach to improving key program areas, especially in curriculum development, assessment, and professional development. The district's recent decision to include seven additional one-half days in the teachers' contract for professional development, indicates the School Board's commitment to improving the educational program and provides the opportunity for continuing this initiative.

CRE's analysis of CMT data clearly reveals not only that significant numbers of fourth grade students in the seven identified elementary schools perform below state goal on mathematics and language arts, but it also displays what are the specific objectives on which successive cohorts of fourth grade students fail to meet state goal. This data based decision-making process is continuously and directly concerned with students' academic performance. The identification and display of specific deficiencies enables central office administrators and building principals to make changes quickly and decisively—to increase or decrease budget items, to purchase materials and equipment, to revise their curriculum, to adopt performance assessment instruments, and to design professional development. As a result, the Waterbury Public School district and its individual buildings are more responsive to prevailing conditions, trends, and changes regarding student performance and staff development needs.

STUDENT PERFORMANCE DATA

CRE's analysis of student performance data—emphasizing mathematics, with a reduced focus on language arts—indicates that the state mandated CMT effectively identifies skill areas where cohorts of students tend to score low and, consequently, where teachers would most likely benefit from strategic technical assistance. Thus, a strategic, data based decision-making process for curriculum development, assessment, and professional development—like that envisioned by SIST—can be of substantial relief and assistance to a school district, like Waterbury.

CRE's analysis of recent building-level CMT data shows that Wilson Elementary School has 65.6 percent of its fourth grade students performing below the state's proficient level in mathematics. Barnard, Chase, and Driggs elementary schools have approximately 30% more of their students than elsewhere in the district, who will need intervention for improving their mathematics achievement. Bucks Hill, Hopeville, and Walsh elementary schools compare favorably with the average student performance rating for the district, but this average performance level is lower than the state average. Thus, depending on which of the schools is emphasized, from 20 to nearly 60 percent of the1998-99 fourth grade students need intervention, in order to improve their mathematics achievement for the sixth grade CMT.

Analysis of CMT performance records, from 1993 to 1998, for the fourth grade at the seven identified elementary schools shows that buildings have their own peculiar histories of low student performance with specific mathematical skills. CRE strongly recommends that the Connecticut Academy and the Waterbury Public Schools provide strategic technical assistance to K-5 teachers on the mathematical skills in need of attention that are peculiar to their building. This report includes lists of specific mathematical skills that merit attention, organized by school building.

Also, analysis of data reveals that all seven schools share a common set of specific skills on which many students consistently score below state goal. Thus, CRE strongly recommends extensive, strategic, and consistent technical assistance to K-5 teachers, who work in all seven elementary schools, in these following eleven mathematical skill areas for curriculum development, for performance-based assessment, and for professional development.

1. Extend and complete patterns
3. Identify alternate forms using regrouping
5. Relate multiplication and division facts to arrays and pictures
13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences
21. Solve story problem using extraneous information (5 of 7 schools)
23. Identify needed information in problem situations (6 of 7 schools)
26. Estimate length and area (6 of 7 schools)
27. Estimate length and area
28. Tell time (3 of 7 schools)

Also, a substantial number of the 1998-99 fourth grade students in these seven schools will most likely need assistance or intervention with development of these skills prior to taking the sixth grade version of the CMT in fall 2000.

IMPLEMENTATION OF SIST

SIST was implemented in each of the seven identified schools and, despite encountering significant obstacles and a number of setbacks, it nevertheless realized a measure of success. Additionally, when acknowledging that SIST is a truly innovative, a timely, and a useful approach to improving public education—especially in urban communities, the lessons learned in the 1998-99 school year present the Waterbury Public Schools and the Connecticut Academy with explicit guidelines for effective follow-up action. Thus, with the refinement of SIST's design and operations, the school district is now in a very good position to benefit from its continued technical assistance in the 1999-2000 school year.

Analysis of data from interviews and surveys shows that the implementation of SIST proved to be a constructive process of discovery for everyone who was directly involved. Representatives from the Connecticut Academy discovered that the long wait from August 1998 to January 1999 for a contract from the City of Waterbury led to troublesome delays with SIST's development and implementation. As a result, the time for planning, organization, schedule, and consulting services was more compressed than anticipated. The public announcement in the local newspaper of SIST's operations in the seven schools caught principals and teachers by surprise and had negative repercussions for consultants. The shortage of substitute teachers, who were required for SIST's operations, frustrated teachers, principals, and consultants. Finally, everyone associated with SIST acknowledges that student performance and teachers' professional development are district-wide concerns, but implementing revealed to all that the design and implementation of a strategic technical support team must be based upon social and educational conditions at the building level.

Teachers in two schools (namely Barnard and Bucks Hill) assessed SIST's performance at high levels, indicating that the mathematics consultants, in particular, provided workshops that were highly interesting and contained useful materials and methods. Additionally, principals said that, due—at least in part—to SIST's complicated introduction, a majority of teachers in all seven schools now understand and value the concept of strategic, data based decision-making for curriculum, assessment, and professional development.

Nevertheless, teachers at the other five schools (Chase, Driggs, Hopeville, Walsh, and Wilson) assessed SIST's overall performance at satisfactory and below average levels. Principals' assessment of SIST complimented the teachers' assessment on both general and specific items. Also, principals gave SIST an overall rating of six on a ten-point scale—above average, while stressing that they expected to report an eight or nine—exceptional.

Additionally, teachers and administrators from all seven schools found the language arts component lacking in regard to content and delivery. Also, the educators said that the assessment component failed from the start and was discontinued by SIST, which raised questions about the initiative's related components in mathematics and language arts. Other concerns raised by the professional educators were that SIST devoted too little time to advanced planning with principals and teachers; gave too little emphasis to programming for grades K-3; and used familiar or out-of-date resources too frequently.

LESSONS LEARNED

The main lessons learned in this initiative are:

- the individual school building, staff, students, and principal must constitute the focal unit for SIST's planning, design, scheduling, operations, personnel, and evaluation;
- planning must begin well in advance of the first day of school—during the preceding summer or spring of previous school year;
- principals and lead teachers must be directly involved in SIST's planning, development, and—when feasible—its operations, in order to promote collaboration at all levels in the school's organization, mutual ownership, and accountability;
- public announcements about the initiative should occur after staff and administration have been alerted to the decision to include SIST in a building's work schedule;
- consultants must have strengths in areas of critical need, including expertise with teaching in specific grade levels and with academic skills, and they must provide workshops and other services that are valued highly by the teachers and principals;
- the School Board, central office, teachers, principals, consultants, and the Connecticut Academy must see SIST as a long-term, intensive, thoughtful, and process-oriented approach to school improvement;
- patience, trust, consistency and coherence, accountability, and determination to succeed are critically important values to assure short-term and long-term success—trust between teachers, principals, and consultants is essential.

CONCLUSION

CRE's evaluation study of the SIST initiative in the seven identified elementary schools of the Waterbury Public Schools demonstrates that a data based approach to decision-making is a highly useful, strategic approach to educational programming. (CRE encourages the audience to read the full report on the evaluation of SIST.) It is a procedure that Waterbury's school administrators and teachers prefer, rather than continuing obsolete methods. Also, the first-year implementation of a data based decision-making process—like any other important and useful innovation—entails complications, which lead to setbacks that necessitate revisions. Hence, this was a discovery process for all who were directly involved. Additionally, SIST is a thoughtful approach to program development, requiring time and consistent application, in order to realize success. The analysis of data shows mixed results overall, which should not surprise or disappoint the reader.

Briefly, analysis of data obtained from surveys with teachers, structured interviews with administrators and representatives from the Connecticut Academy, observations of meetings, and review of documents shows that SIST produced mixed results in the schools. The evaluation shows strong agreement between teachers, administrators, and SIST consultants regarding the strengths of this initiative, its start-up problems, and the best solutions to those problems.

From Waterbury's teachers and administrators, SIST received an overall 60% performance rating. Similarly, consultants from the Connecticut Academy expressed disappointment that the program had not gone as smoothly as they had expected. However, the SIST idea for providing technical assistance to elementary schools is recognized by all the educators as a very sound approach to improving students' learning, in general, and for improving their performance on the CMT, in particular. Despite the issues regarding SIST's implementation, it is nonetheless a program that will benefit the district. Thus, the assistant superintendent should be commended for his foresight and risk-taking.

Educational innovations always encounter resistance from various sources, contend with various obstacles, and have to regroup or to reorganize for a more effective approach to the situation—especially in their first year of operations. Thus, recognizing the strengths of this idea for improving the instructional program and its general plan of operations, CRE strongly recommends that both parties to this contract exploit what works best and continue working together to improve teaching and learning in Waterbury's elementary schools. At the conclusion of this report, there are specific recommendations for improvement.

At this time, the Connecticut Academy and the Waterbury Public Schools should collaborate to clarify SIST's purpose and to establish rigorous and specific objectives, processes, and standards for the initiative. In summer 1999, a year-long technical assistance program should resume in two or three of the seven original elementary schools. By fall 1999, the revised SIST program should attain higher approval ratings from teachers and principals. It should also provide greater assurance of success for teachers and students. Once the Waterbury

model of technical assistance has achieved definition and has demonstrated its effectiveness in these schools, it should be applied with appropriate adjustments on a scheduled basis in other elementary schools in Waterbury.

In conclusion, the lessons learned are the best results of this initiative. Patience, mutual trust, consistency, coherence, accountability, and determination to succeed must continue as the basic principles guiding SIST's development. The Connecticut Academy's reputation for providing quality service and materials to improve mathematics and science education is well-recognized statewide. Administrators and teachers in the Waterbury Public Schools express a commitment to improving students' CMT performance through the strategic professional development of elementary school teachers. Furthermore, everyone involved with this initiative recognizes that strategic planning and operations—informed by a current and explicit analysis of essential data—are critical elements for improving the school's curriculum, assessment practices, and professional development. With these recommendations in mind, CRE strongly urges continuation of SIST in the Waterbury Public Schools.

RECOMMENDATIONS

The following recommendations come from surveys and interviews with Waterbury's teachers and principals and from reports and meetings with the consultants, who worked for the Connecticut Academy. Additionally, CRE provides a number of recommendations for analysis of CMT data and SIST program changes, in order to support an effective technical assistance program.

1. Analysis of CMT Data

- Analyze CMT data by cohort groups of students within buildings and, to the extent possible, within the district, in order to study the long-term impact of intervention strategies and to assess the merit of different intervention strategies.

- Hire a consultant—who is familiar with CMT data, urban education issues, curriculum, instruction, and assessment—to develop graphical representations and related materials pertaining to building-level student performance data for use by teachers and principals when planning for technical assistance.

- Focus on the K-5 students who do not change schools, using as the minimum criterion of success for the SIST program 100% of these students scoring at or above state goal. Develop a similar plan for all other children, based on recommendations from the study of student mobility issues in Waterbury.

- Incorporate appropriate performance-based assessment instruments to monitor all children's development of specific skills in grades K-5, including relevant follow-up methods and materials for developmental and remedial instruction.

- Use the yearly analysis of CMT data (as suggested in this report) to identify specific skills for special age/grade appropriate emphasis in each grade K-5, using 85 percent mastery (state goal) on all performance measures as the main criterion of success.

2. SIST Program

- Maintain regular communications with central office administrators in regard to SIST's operations, in general, and to feedback from participants, specifically.

- Emphasize what works. Demonstrate to teachers the methods and materials that help urban children to learn reading, writing, and/or mathematics.

- Organize and facilitate a sufficient number of discussion sessions, during which teachers describe common issues and propose effective solutions.

- Monitor on a daily basis the activities and processes of consultants, in order to ensure quality performance, including prompt response to issues and problems. Set the goal for each building at 100% participant satisfaction that SIST provides excellent service.

- Consult with teachers and principals at the earliest opportunity to determine building expectations and needs, and continue consulting on a regular basis throughout the initiative.

- Focus on intensive, strategic, age/grade appropriate developmental programs in math and reading/study skills for Pre-K through third grade. Set 85 percent mastery of specific skills (state goal) as the criterion of success.

- Provide follow-up developmental and remedial programs in math and reading/study skills for fourth and fifth grade students. Set 85 percent mastery of specific skills (state goal) as the criterion of success. Monitor closely for age-appropriate development and adjust instruction based on students' needs.

- Transition district administrators, principals, and lead teachers within three years to full responsibility for analysis of CMT data and related documentation, in order to support data based decision-making at district and building levels.

- Hire consultants to study and report on student mobility issues in Waterbury as they relate to curriculum, instruction, and assessment. Develop recommendations for policy changes, general program development, and intervention strategies in order to mitigate the adverse effects of extremely high student mobility rates.

3. Personnel

- During 1999 summer, hire a consultant to study CMT data and to work with district administrators, principals, and lead teachers to identify specific skills as objectives for SIST. Select methods, materials, equipment, and personnel to accomplish the objectives.

- Hire exemplary technical assistance providers, with qualifications—including practical experience—in pre-kindergarten and kindergarten and in grades 1, 2, 3, 4, and 5.

- Hire a consultant for the assessment component, who has substantial, direct experience with analysis of CMT data for data based decision-making, and who has the skill to work effectively with teachers and administrators.

- Insist on high quality performance by all consultants and ensure fit of personnel and program with individual schools.

- Improve availability and scheduling of substitute teachers.

4. Operations

- Conduct intensive study of CMT data and other relevant documentation, in order to prepare a clear, formal, consistent, and data based plan for professional development that is specific to each building.

- Disseminate the technical assistance plan to the teachers and principal, in order to support direct, open, and continuous communication with all participants.

- Provide sustained, consistent, strategic technical assistance (have principal and lead teachers help determine the time frame and schedule of operations).

- Organize consultants' work to include presenting workshops that are consistent with the plan, collaborating with teachers, working hand-in-hand with regular classroom teachers, serving as grade level resource teachers, and identifying lead teachers to assist with implementing the program.

- Organize workshops by age/grade levels, because the needs and interests of pre-kindergarten, kindergarten, primary school, and intermediate level teachers are very different.

5. Evaluation and Assessment

- Continue the independent external evaluation of the SIST initiative, in order to describe, measure, and assess its performance during this formative period.

Waterbury Public Schools and Connecticut Academy for Education

School Improvement Support Team
SIST

EXTERNAL EVALUATION STUDY
JUNE 30, 1999

INTRODUCTION

In the1998-99 school year, the Waterbury Public Schools—through the City of Waterbury, CT—and the Connecticut Academy for Education in Mathematics, Science, and Technology[1] adopted an agreement specifying that the Connecticut Academy for Education would develop and implement a comprehensive, cohesive set of programs and activities to improve delivery of instruction for improved student performance in the Waterbury Public Schools. School Improvement Team Support (SIST) is the name that was adopted for this program. The Connecticut Academy was a good choice for this contract because of its excellent reputation statewide for systemic reform of education and because it had provided assistance to the school district on curriculum development during the previous three years.

The Connecticut Academy's total contract cost for SIST—including fees for personnel, activity, bus transportation, and substitute teacher reimbursement—is $152,309.02. Formal discussion of this technical assistance program was initiated by representatives from the Waterbury Public Schools and the Connecticut Academy in August 1998. The Connecticut Academy's SIST team began work with building principals on December 5, 1998. School-based work began in mid-January 1999.

SCHOOL IMPROVEMENT SUPPORT TEAM (SIST)

1. Purpose

As indicated above, the overall purpose of SIST is to improve delivery of instruction, leading to improved student performance. More specifically, SIST would provide technical assistance to the Waterbury Public Schools—aligned to and consistent with the work done during the 1997-98 school year by the Connecticut Academy—and make the district's educational

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[1]Connecticut Academy for Education, Connecticut Academy, and Academy are common references for the Connecticut Academy for Education in Mathematics, Science, and Technology.

program consistent with the Curriculum Frameworks for mathematics and language arts, which have been approved for statewide implementation by the Connecticut State Department of Education. Additionally, SIST would review identified schools' instructional programs measured by existing student performance data and give special attention to making the district's instructional practices, assessment across grade levels, and identification of resource allocation practices at seven identified elementary schools consistent with and supportive of the Curriculum Frameworks. Also, SIST would work with the Waterbury Public Schools administration to analyze staffing expertise and student mobility issues.

During the 1998-99 school year, the following seven Pre-K-5 and K-5 schools participated in SIST. Included in this list is information regarding student enrollment, student mobility rates[2], and number of regular classroom teachers. The extent of faculty mobility is not an issue in these seven schools.

Schools	Enrollment	Mobility Rate	Teachers
Barnard	285	100%	18
Bucks Hill	580	32%	27
Chase	747	77%	33
Driggs	598	100%	33
Hopeville	480	34%	24
Walsh	615	100%	27
Wilson	270	very low	12

2. Expected Results

The contract between Waterbury Public Schools and the Connecticut Academy specifies the following expected results:

- analysis of comprehensiveness and coherence of mathematics and language arts curricula and instructional practices
- group and individual work with the seven Waterbury school faculty for a coherent program of instruction consistent with the Curriculum Frameworks
- continuing dialogue between SIST and the seven building administrators relevant to technical assistance set forth in this plan
- analysis of faculty professional development practices for strategic planning

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[2]Waterbury's student mobility rate involves several categories, including transfers within and outside of the district. To simplify the issue, we use one figure—an approximation drawn from the principal's office that combines all terms. Additionally, these percentages do not indicate that, for example, 100% of the students actually transferred, but rather that a number of instances equal to the total number of students enrolled for the year made transfers.

- analysis of data on faculty mobility and school performance
- report of results by June 30, 1999.

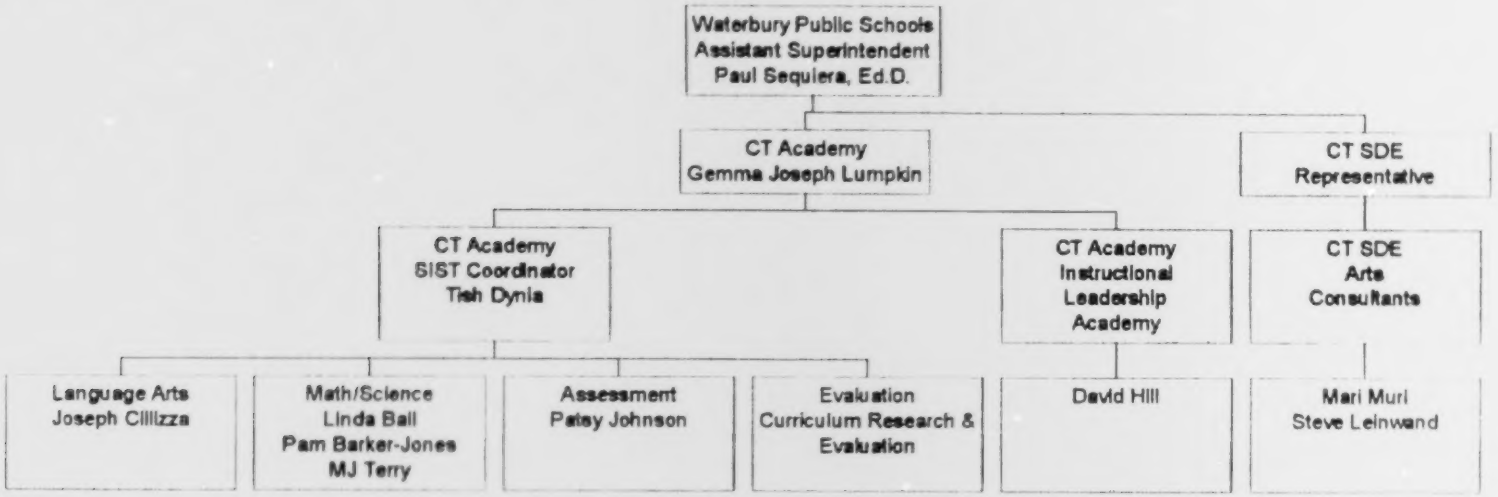
Additionally, the technical assistance contract includes measurable objectives for the following areas:

- Teaching and Learning Goals and Objectives
- Curriculum and Instruction
- Assessment
- Professional Development

3. Personnel

The following chart represents the organizational structure for SIST and includes names of key participants.

SCHOOL IMPROVEMENT SUPPORT TEAM: ORGANIZATION CHART



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FOCUS OF STUDY

The Connecticut Academy retained Curriculum Research & Evaluation as evaluator for the purpose of conducting a formative evaluation of SIST's operations, during the 1998-99 school year. The process of evaluation included: participation in SIST's organizational meetings at the Connecticut Academy; participation in SIST's preliminary meeting at the Waterbury Public Schools; development and distribution of survey instruments for teachers; development of interview questions and conduct of interviews with administrators and representatives from the Connecticut Academy; collection and analysis of data from various sources, including surveys, interviews, and results of students' performance on the mathematics and language arts portions of the CMT; and preparation of the formative report.

The design for this evaluation study used procedures and instruments for data collection and analysis that are consistent with national standards for evaluation studies. Additionally, key elements in the successful assessment of a process-oriented program, such as the SIST initiative in Waterbury, are flexibility and caution. Consequently, the evaluator developed protocol for the field study in reference to and contingent upon SIST's development in the different elementary schools.

Similarly, the evaluator's development of data collection instruments relied on clarification of SIST's program and the response of participating teachers and principals. Thus, in order to lesson the impact of the evaluation process on district personnel and on the educational program, the evaluator—in consultation with the Connecticut Academy—did not observe workshops and teachers' classrooms. Additionally, the evaluator did not administer pre- and post tests, which would indicate the extent to which SIST influenced teachers' practice and opinions over time. Also, the items on the teacher survey were limited, in order to encourage all teachers to respond.

Thus, a weakness of the evaluation is the absence of experimental control in the research design. Nevertheless, CRE maintains that the evaluation design is appropriate to this situation. Additionally, CRE maintains that this report of results is accurate and truthful. CRE sincerely hopes that this evaluation is useful to the Waterbury Public Schools and to the Connecticut Academy for Education. Contributions to the evaluation process by teachers, administrators, and representatives from the Connecticut Academy are greatly appreciated. Assessment instruments developed for this study are found in the Appendix.

PREVAILING ISSUES

Analysis of data obtained from interviews with key participants and surveys from teachers revealed that a number of issues had a significant impact on the development and implementation of SIST. The Connecticut Academy reported that the long delay (from August 1998 to January 1999) in finalizing the contract with the City of Waterbury compressed the time that was anticipated for planning and implementing the program. Nevertheless, on the basis of assurances from the assistant superintendent that the contract would be approved, the Connecticut Academy initiated the SIST program. Teachers and principals were surprised to learn from the local newspaper that this initiative was coming to their buildings. They preferred to be involved in the planning stage of SIST and, thus, not only to have advance notice, but also to have a role in determining its design and operations. Indeed, some of the teachers and administrators could collaborate with the consultants to provide technical assistance.

Additionally, due to poor communication, teachers became concerned that the initiative was actually serving an evaluative role relative to their classroom work, instead of focused on technical assistance to improve teaching and learning. Also, teachers, administrators, consultants, and representatives from the Connecticut Academy said that the shortage or the absence of substitute teachers often delayed or canceled operations that were planned, which caused many participants to feel frustrated because things were not done as expected. The Connecticut Academy acknowledged that the failure of the assessment and language arts components led to some disappointment with the program. In the future, the Connecticut Academy plans to research more carefully the needs and the preferences of individual buildings, in order to select consultants that provide the professional educators with the best technical assistance.

ANALYSIS OF STUDENT PERFORMANCE DATA: MATHEMATICS

In 1995, CRE created a graphical system for the Connecticut Academy in order to represent statewide student performance data from the Connecticut Mastery Test (CMT) (2nd Generation). The Connecticut State Department of Education (CSDE) administers the CMT annually in grades four, six, and eight. There are three sections, including mathematics, reading, and writing. The graphical system presents in visual form a longitudinal study of students' performance on the CMT at both district and building levels, including analysis of specific skills, thus, enabling the reader to quickly recognize positive and negative trends. The graphical system was used for representation of data from the mathematical component of the CMT, however, the same system may be applied to the language arts component.

The current version of the graphical analysis of student performance data was produced by the Connecticut Academy, in spring 1999, and includes documentation from 1993 - 1998. For the purposes of this discussion, the reader is advised to consult the binder containing "Student Performance in Mathematics, Connecticut Mastery Test 1993 - 1998: A Graphical Presentation Prepared for Waterbury Public Schools." There will be a discussion of graphs contained in Part I that is focused on analysis of fourth grade students' overall performance specific to the seven elementary schools that were identified for SIST. Next, there will be a discussion of graphs contained in Part II that concerns analysis of fourth grade students' performance on specific skills within the seven elementary schools.

CSDE categorizes student performance data from the CMT for grades four, six, and eight according to three levels: Intervention, Proficient, and Excellent. For this analysis of data, CRE is restricting its focus to the intervention level for the district's fourth grade students at the seven identified elementary schools. Also, the CSDE has set maximum scores and other criteria for the grades, which appear in the following table. The last column in this table shows the percent of students statewide who scored at or above the state goal in all three sections of the CMT in fall 1998. Additionally, analysis of CMT data by the CSDE reveals that, from 1993 to 1998, there has been an 8.1% overall increase for fourth graders, an 8.0% increase for sixth graders. and a 10.5% increase overall for eighth graders statewide scoring at or above goal on all three sections of the test combined.[3]

	Total Points	State Goal	*Intervention*	*Proficient*	*Excellent*	% At/Above Goal
Grade 4	121	103 (85%)	< 77	77-102	103 +	61.4%
Grade 6	154	122 (79%)	< 80	80-121	122 +	52.9%
Grade 8	172	130 (76%)	< 84	84-129	130 +	56.7%

[3]For more information on CSDE documentation and analysis of CMT data, the reader should consult the CSDE web site at http://www.state.ct.us/sde or call the CSDE's Public Information Office at 860-566-5677.

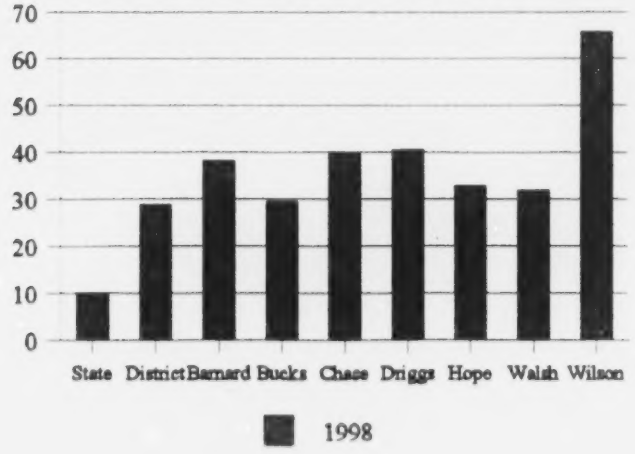
1. Analysis of Students' Overall Performance

Figure 17 presents overall student performance data for fourth grade students, who scored at the intervention level on the mathematics section of the CMT for fall 1998—categorized by state, Waterbury Public Schools (district), and seven identified elementary schools in Waterbury, CT. Clearly, Woodrow Wilson Elementary School has the most serious condition, with 65.6 percent of its fourth grade students performing below the state's proficient level in mathematics.[4] Results for Barnard, Chase, and Driggs show approximately 30% more of their students than elsewhere in the district, who will need intervention for improving their mathematics achievement. Bucks Hill, Hopeville, and Walsh compare favorably with the average student performance rating for the district, which is still substantially different from and lower than the state average.

Hence, across the seven identified schools, there are three levels of performance: average, below average, and far below average for the district. When this district- and building-level data is compared with the statewide performance relative to intervention needs (10%), it is clear that from 20 to nearly 60 percent of Waterbury's 1998 fourth grade students may need intervention in order to improve their mathematics achievement.

Thus, this analysis of fourth grade student performance data indicates that—based on an average class size of 20 students (approximately the district and state average) and depending on the school—between six and twelve students per class will need intervention, in the 1999 - 2000 school year, in order to improve their chances of performing at least at the proficient level with mathematics achievement by the time they take the sixth grade version of the CMT, in fall 2000.

Figure 1: 4th Grade Intervention

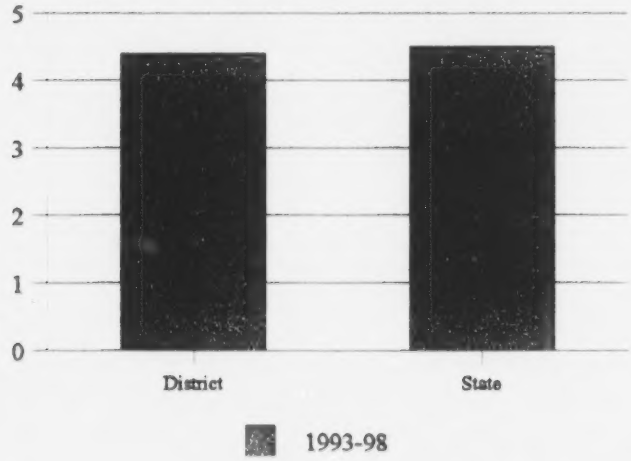


[4]Wilson opened its doors for the first time, in 1996-97, as a dual language school of choice, with Spanish & English required.

Analysis of fourth grade student performance data at each of the seven schools for years 1993 through 1998 on the mathematics section of the CMT (see binder), reveals modest variation in the percentage of students needing intervention for mathematics achievement. The performance of different cohorts of previous fourth grade students at Bucks Hill, Driggs, Hopeville, and Walsh elementary schools indicates that increasing percentages of each succeeding cohort faired somewhat better than their predecessors in regard to need for intervention. However, at Barnard, Chase, and Wilson the succeeding cohorts either had roughly similar performance results or the percentages needing intervention grew larger. Today, these many of these students are in the fifth, sixth, and seventh grades.

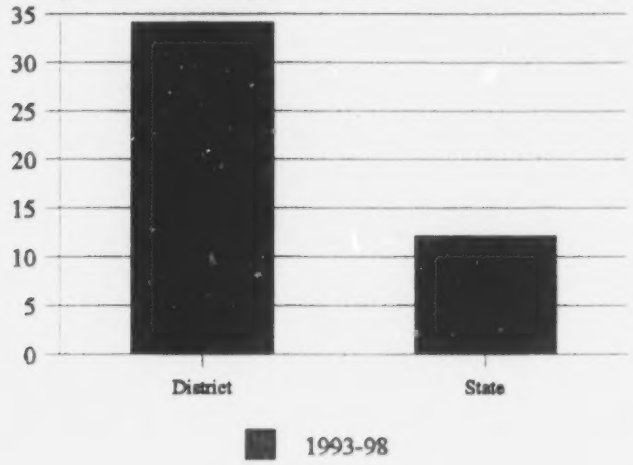
Finally, Figure 18 shows that analysis of district-level data—taking the 1993 performance record as baseline data and using 1998 data as the current reference point—on the fourth grade students' performance on the mathematics section of the CMT indicates that there has been a modest 4.4% reduction in the percentage of students needing intervention, which compares favorably with the statewide reduction for these same data points.

Figure 2: Reduction in Intervention



Although the district's 4.4% reduction for fourth grade students needing intervention in mathematics compares favorably with a 4.5% reduction statewide, Figure 19 reveals that the average percentage of fourth grade students statewide needing intervention between the years 1993 to 1998 is 12.1%, while the average percentage of students needing intervention in Waterbury Public Schools during that same period is 34.1%—which is a difference of 22 percentage points.

Figure 3: Average Need for Intervention



2. Analysis of Students' Specific Skills

The graphical charts published by the Connecticut Academy for representation of specific skills is focused on the percent of students "at or above state goal" on each CMT grade four mathematics objective, which is consistent with the CSDE annual report concerning CMT results. However, neither the CSDE data sets nor the charts exhibit the percent of students who would benefit most from intervention strategies, in order to improve their mathematics achievement prior to the CMT's administration in the sixth grade.

The state goal for the CMT fourth grade objectives is 85% of the total score (state goal: 103; total:121). Thus, "at or above state goal" is one percentage point above proficient, in addition to being the lowest percent acceptable in the "excellent" category.[5] Since these students' mathematical skills have been assessed as "excellent," it is not necessary to focus on them for analysis and strategic decision-making when there are concerns for curricular issues and professional development. Where students' performance registers low in these charts, it is at least clear that a great majority of students lack that specific mathematical skill.

For purposes of this analysis, CRE will use interpolation of the charts from the Connecticut Academy concerning percent of fourth grade students "at or above state goals" between 1993 and 1998, in order to identify the specific mathematical objectives that are most obviously in need of attention in each of the seven different elementary schools. The analysis will also use interpolation of the charts to focus on specific skills that are most in need of attention across all of these schools.

The criterion CRE will use to determine a building-level need for intervention with particular objectives will be identification of circumstances where there is a mean or average percent showing that "50 percent or more" of the fourth grade students did <u>not</u> perform "at or above state goal" on that objective, between 1993 and 1998. Additionally, we will consider strong trends in the data over three or more years (increase, decrease, or plateau) to merit special attention.

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[5]See the table for CSDE scoring criteria in the section above titled, "Analysis of Student Performance Data."

The following table shows the categories that CSDE uses for its CMT objectives on general and specific levels.

Objective Categories	Specific Skills
Number Sense (1-5)	• Extend and complete patterns • Identify alternate forms using expanded notation • Identify alternate forms using regrouping • Identify and label parts of regions and sets • Relate multiplication and division facts to arrays and pictures
Number Facts/Computation (6-9)	• Add and subtract facts to 18 • Add and subtract 1- and 2-digit numbers without regrouping • Add 1- and 2-digit numbers with regrouping • Multiply and divide by 2, 5, and 10
Problem Solving/Application (10-24)	• Solve problems: order and magnitude of whole numbers • Solve problems: place value concepts • Solve problems: rounding 2-digit whole numbers • Solve problems: estimate sum and difference, including money • Identify objects and numbers that are same and different • Identify information from graph, table, and chart • Draw conclusions from graph, table, and chart • Create bar graphs and pictographs from data • Write story problems from number sentences • Identify operation to solve story problem • Solve story problem using addition and subtraction • Solve story problem using extraneous information • Solve problem concerning time, elapsed time, and calendars • Identify needed information in problem situations • Solve problems with elementary notions of probability
Measurement/Geometry (25-30)	• Measure lengths and draw lines (in centimeters) • Identify customary and metric measures • Estimate length and area • Tell time • Determine the value of a set of coins • Identify and draw geometric shapes and figures

The operational question for the following discussion of building-level results is: *Based upon CMT data, which specific skills do 50% or more of the building's fourth grade students perform below CSDE's designation of "at or above state goal" (i.e., 85% mastery level)?*

The following table identifies the grades that these fourth grade students will be attending in the 1999 to 2000 academic year.

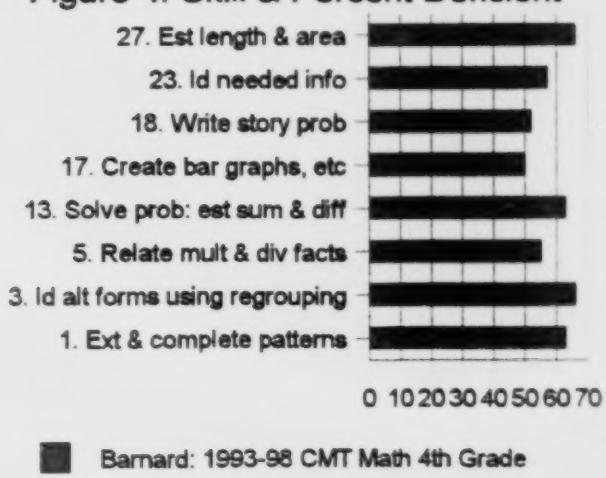
Year of CMT	Grade in 1999 - 2000
1993	*10*
1994	9
1995	*8*
1996	7
1997	*6*
1998	5

The above table shows that all of these students are school-age; that the 1997 cohort will take the sixth grade version of the CMT in fall 1999; that the 1995 cohort will take the eighth grade version of the CMT in fall 1999; and that the 1993 cohort group will take the Connecticut Academic Performance Test (CAPT), which is also state mandated and is administered by CSDE, in spring 2000.

A. Barnard

Figure 20 identifies the specific mathematical skills that fourth grade students—who took the CMT at Barnard Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 4: Skill & Percent Deficient


27. Est length & area
23. Id needed info
18. Write story prob
17. Create bar graphs, etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 10 20 30 40 50 60 70
Barnard: 1993-98 CMT Math 4th Grade

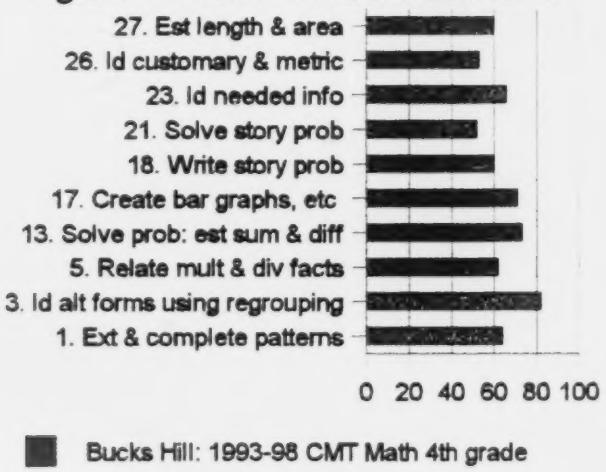
Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Barnard is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skills:

13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences
23. Identify needed information in problem situations
27. Estimate length and area

B. Bucks Hill

Figure 21 identifies the specific mathematical skills that fourth grade students—who took the CMT at Bucks Hill Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 5: Skill & Percent Deficient


27. Est length & area
26. Id customary & metric
23. Id needed info
21. Solve story prob
18. Write story prob
17. Create bar graphs, etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 20 40 60 80 100
Bucks Hill: 1993-98 CMT Math 4th grade

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Bucks Hill is experiencing a consistent low performance with the following mathematical skill:

3. Identify alternate forms using regrouping

There is evidence of a serious and consistent downward trend in students' performance with the following specific mathematical skills:

13. Solve problems: estimate sum and difference, including money
27. Estimate length and area

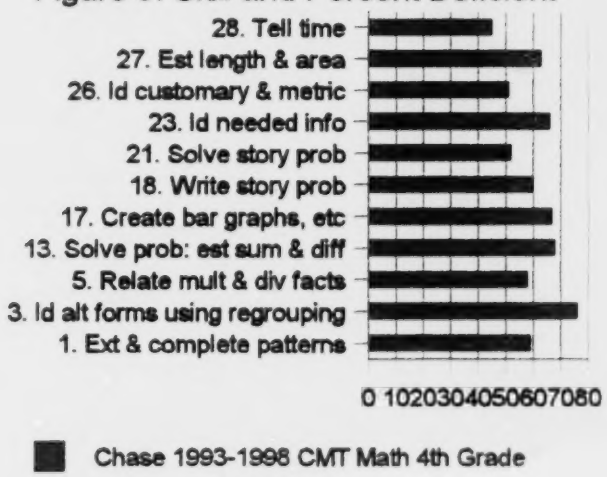
Finally, despite a generally low-level performance between 1993 and 1998, analysis of data nevertheless indicates that Bucks Hill is realizing substantial and consistent growth in the following skills:

18. Write story problems from number sentences
21. Solve story problem using extraneous information
23. Identify needed information in problem situations

C. Chase

Figure 22 identifies the specific mathematical skills that fourth grade students—who took the CMT at H. S. Chase Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 6: Skill and Percent Deficient


28. Tell time
27. Est length & area
26. Id customary & metric
23. Id needed info
21. Solve story prob
18. Write story prob
17. Create bar graphs, etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 1020304050607080
Chase 1993-1998 CMT Math 4th Grade

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Chase is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skill:

28. Tell time

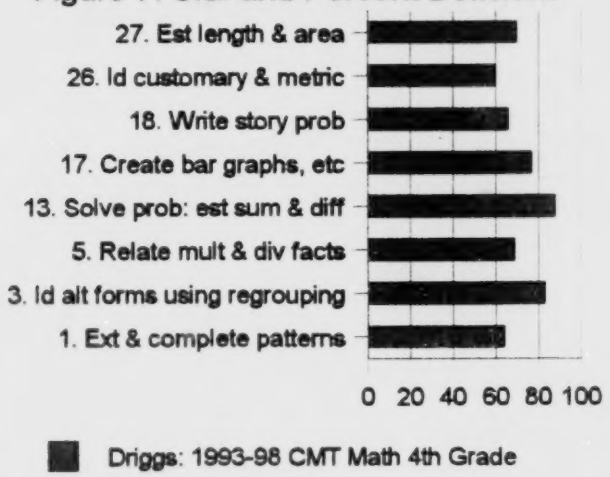
Finally, despite a generally low-level performance between 1993 and 1998, analysis of data nevertheless indicates that Chase is realizing substantial and consistent growth in the following skills:

5. Relate multiplication and division facts to arrays and pictures
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences

D. Driggs

Figure 23 identifies the specific mathematical skills that fourth grade students—who took the CMT at Driggs Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 7: Skill and Percent Deficient


27. Est length & area
26. Id customary & metric
18. Write story prob
17. Create bar graphs, etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 20 40 60 80 100
Driggs: 1993-98 CMT Math 4th Grade

Analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Driggs is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skills:

3. Identify alternate forms using regrouping
17. Create bar graphs and pictographs from data
27. Estimate length and area

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Driggs is experiencing a consistent low performance with the following mathematical skill:

3. Identify alternate forms using regrouping
13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data

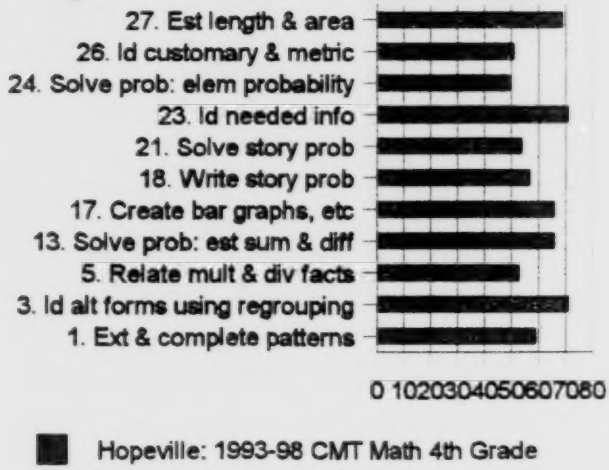
Finally, despite a generally low-level performance between 1993 and 1998, analysis of data nevertheless indicates that Driggs is realizing substantial and consistent growth in the following skills:

5. Relate multiplication and division facts to arrays and pictures
18. Write story problems from number sentences

E. Hopeville

Figure 24 identifies the specific mathematical skills that fourth grade students—who took the CMT at Hopeville Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 8: Skill and Percent Deficient


27. Est length & area
26. Id customary & metric
24. Solve prob: elem probability
23. Id needed info
21. Solve story prob
18. Write story prob
17. Create bar graphs, etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 10203040506070 80
Hopeville: 1993-98 CMT Math 4th Grade

Analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Hopeville is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skill:

3. Identify alternate forms using regrouping

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Hopeville is experiencing a consistent low performance with the following mathematical skills:

3. Identify alternate forms using regrouping
23. Identify needed information in problem situations

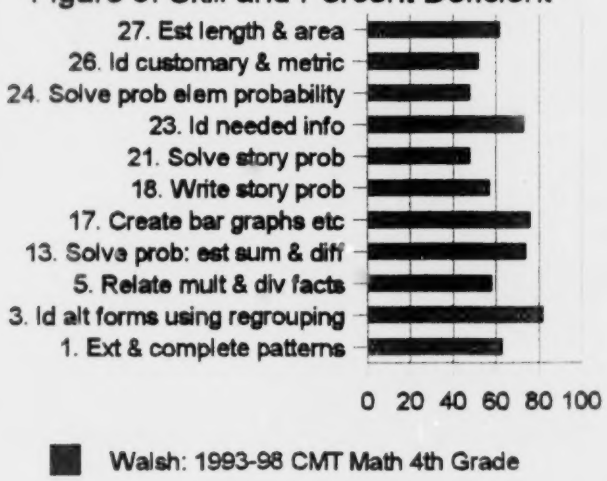
Finally, despite a generally low-level performance between 1993 and 1998, analysis of data nevertheless indicates that Hopeville is realizing substantial and consistent growth in the following skills:

5. Relate multiplication and division facts to arrays and pictures
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences
23. Identify needed information in problem situations
- **Solve problems with elementary notions of probability**

F. Walsh

Figure 25 identifies the specific mathematical skills that fourth grade students—who took the CMT at Walsh Elementary School between 1993 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Figure 9: Skill and Percent Deficient


27. Est length & area
26. Id customary & metric
24. Solve prob elem probability
23. Id needed info
21. Solve story prob
18. Write story prob
17. Create bar graphs etc
13. Solve prob: est sum & diff
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 20 40 60 80 100
Walsh: 1993-98 CMT Math 4th Grade

Analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Walsh is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skills:

3. Identify alternate forms using regrouping
27. Estimate length and area

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1993 and 1998 on the CMT reveals that Walsh is experiencing a consistent low performance with the following mathematical skills:

3. Identify alternate forms using regrouping
13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data

Finally, despite a generally low-level performance between 1993 and 1998, analysis of data nevertheless indicates that Walsh is realizing substantial and consistent growth in the following skills:

5. Relate multiplication and division facts to arrays and pictures
18. Write story problems from number sentences
21. Solve story problem using extraneous information
24. Solve problems with elementary notions of probability

G. Wilson

There are only two years of CMT data from Wilson—1997 and 1998, thus, the following analysis of fourth grade students' performance with the mathematics section of the CMT is seriously limited. Nonetheless, there is sufficient evidence indicating what are most likely the main problem areas. In fact, analysis of data indicates that, in comparison with the other six identified schools, Wilson has the greatest number of mathematical skills on which students are deficient.

Figure 10: Skill and Percent Deficient

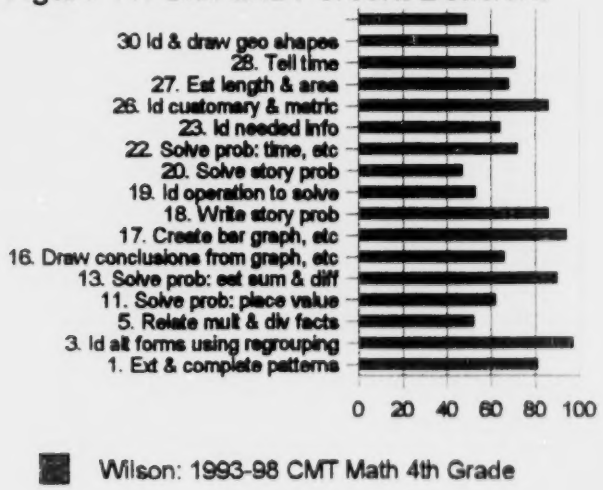

30 Id & draw geo shapes
28. Tell time
27. Est length & area
26. Id customary & metric
23. Id needed info
22. Solve prob: time, etc
20. Solve story prob
19. Id operation to solve
18. Write story prob
17. Create bar graph, etc
16. Draw conclusions from graph, etc
13. Solve prob: est sum & diff
11. Solve prob: place value
5. Relate mult & div facts
3. Id alt forms using regrouping
1. Ext & complete patterns
0 20 40 60 80 100
Wilson: 1993-98 CMT Math 4th Grade

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Figure 25 identifies the specific mathematical skills that fourth grade students—who took the CMT at Woodrow Wilson Elementary School between 1997 and 1998—consistently scored low on and the percent of students who will most likely need assistance or intervention with these skills.

Analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1997 and 1998 on the CMT reveals that Wilson is experiencing a serious and consistent downward trend in students' performance with the following specific mathematical skills:

11. Solve problems: place value concepts
16. Draw conclusions from graph, table, and chart
18. Write story problems from number sentences
19. Identify operation to solve story problem
20. Solve story problem using addition and subtraction
21. Solve story problem using extraneous information
23. Identify needed information in problem situations
28. Tell time

Additionally, analysis of the charts on the 50 percent or more of fourth grade students who did not score at or above state goal between 1997 and 1998 on the CMT reveals that Wilson is experiencing a consistent low performance with the following mathematical skills:

1. Extend and complete patterns
3. Identify alternate forms using regrouping
13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences
21. Solve story problem using extraneous information
23. Identify needed information in problem situations
27. Estimate length and area

Finally, despite a generally low-level performance between 1997 and 1998, analysis of data nevertheless indicates that Wilson is realizing substantial and consistent growth in the following skills:

5. Relate multiplication and division facts to arrays and pictures
18. Write story problems from number sentences
21. Solve story problem using extraneous information
24. Solve problems with elementary notions of probability

H. Deficiencies Needing Attention Across all Schools

The following list includes the specific mathematical skills that fourth grade students—who took the CMT at the district's seven identified elementary schools between 1993 and 1998—consistently scored low on.

CRE strongly recommends that the Connecticut Academy and the Waterbury Public Schools provide strategic technical assistance with the specific mathematical skills identified in the previous building-level analysis, for all K-5 regular classroom teachers.

Additionally, CRE strongly recommends that the Connecticut Academy and the Waterbury Public Schools provide extensive, strategic, and consistent technical assistance to K-5 teachers, who work in the seven elementary schools, in these following eleven mathematical skill areas for curriculum development, for performance-based assessment, and for professional development. Also, a substantial number of the fourth grade students in these seven schools will most likely need assistance or intervention with development of these skills prior to taking the sixth grade version of the CMT in 2000.

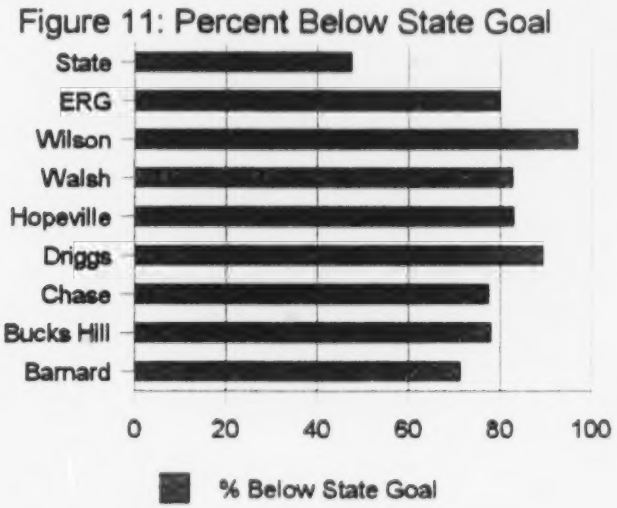
1. Extend and complete patterns
3. Identify alternate forms using regrouping
5. Relate multiplication and division facts to arrays and pictures
13. Solve problems: estimate sum and difference, including money
17. Create bar graphs and pictographs from data
18. Write story problems from number sentences
21. Solve story problem using extraneous information (5 of 7 schools)
23. Identify needed information in problem situations (6 of 7 schools)
26. Estimate length and area (6 of 7 schools)
27. Estimate length and area
28. Tell time (3 of 7 schools)

ANALYSIS OF STUDENT PERFORMANCE DATA: READING

Students' reading ability is linked to mathematics most directly through the items on the mathematics test that are word problems. Thus, in an effort to support improvement of students' performance with mathematics, the Waterbury Public Schools requested that the Connecticut Academy focus some of its technical assistance on language arts.

Figure 26 presents the analysis of fourth grade students' performance with the reading section of the CMT. Source data includes average percent of students meeting state goal for years 1993, 1995, 1997, and 1998. Once again, CRE used the process of interpolation with the source data, in order to identify the average percent of students who did not meet state goal within this time frame.

Overall, Waterbury's seven identified elementary schools performed similar to other schools in the same ERG. However, the comparison with other schools in the same ERG also shows that two of Waterbury's elementary schools had a greater percentage of students who did not meet state goal (Driggs and Wilson). Additionally, all seven schools have substantially greater percentages of students, who do not meet state goal, than the state average for this same period of time. Also, study of the performance records of these seven schools from year to year shows a pattern of gain/loss, gain/loss—concerning progress toward state goal. The net result over time is a slight gain for Bucks Hill, Hopeville, and Walsh. For the other four schools, there is little or no gain.



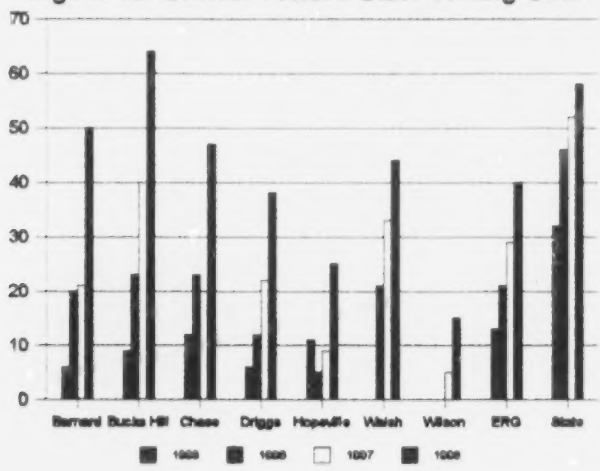
CRE does not have documentation on students' performance pertaining to specific reading skills. Nevertheless, on the basis of this chart, it is reasonable to conclude that all seven identified elementary schools in the Waterbury Public Schools would benefit from sustained, strategic assistance for the improvement of students' reading ability. The schools' increased growth toward meeting the state goal on reading skills will support students' performance on the mathematics section of the CMT.

ANALYSIS OF STUDENT PERFORMANCE DATA: WRITING

The linkages between performance on the writing and mathematics portions of the CMT are much less evident than between the reading and mathematics portions. Nonetheless, since the CSDE reports CMT data on students' writing performance, CRE includes analysis of that data.

Figure 27 concerns the percent of fourth grade students meeting state writing goal for each of the four years. Analysis of this chart shows that all identified elementary schools have realized steady growth in performance on the writing portion of the CMT during the 1993, 1996, 1997, and 1998 school years. Indeed, Bucks Hill has exceeded the state average and the ERG average for 1998.

Figure 12: Growth Toward State Writing Goal



On the basis of this analysis of data, CRE concludes that five of the seven identified elementary schools Waterbury district can take pride in their performance record relative to improving students' writing skills consistent with the state goal—Barnard, Bucks Hill, Chase, Driggs, and Walsh. The two exceptions to this positive record are Hopeville and Wilson elementary schools.

However, the implications of students' improvement in writing for their performance on the mathematics portion of the CMT are difficult to determine on the basis of this data. In view of this analysis of CMT performance records in reading and writing, CRE strongly recommends that the Connecticut Academy and the Waterbury Public Schools emphasize more intensive analysis of specific language arts skills, in order to support data based decision-making for the improvement of students' reading in the content areas—especially mathematics—and study skills, including a focus on students' test taking skills.

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ANALYSIS OF DATA: EDUCATORS

A questionnaire was distributed to all of the teachers who participated in SIST at the seven different elementary schools. The items on this evaluation instrument provided opportunity for controlled choice (i.e., yes/no; multiple-choice) and follow-up written explanation of answers. SIST team members distributed copies of the evaluation instrument to the teachers. When teachers completed the survey, they returned it by mail directly to CRE. The return rate for the survey was high: 71 percent. Most teachers provided additional written comments, where requested on the survey.

CRE also conducted structured interviews with six of the seven building principals and with the assistant superintendent. Wilson's principal was on personal leave during the interview process, thus, CRE was not able to contact him.

Nevertheless, documentation from the teachers' surveys, in addition to material from participating administrators and CRE's observations, provide a sufficiently well-developed data base from which to draw conclusions regarding SIST's effectiveness. Analysis of data indicates that there is agreement across the categories of participants on the different survey items and interview questions. Exceptions are noted.

The analysis of data pertaining to educators' perceptions of the SIST initiative appears in the next four sections: Teachers' Assessment of SIST's Effectiveness, Administrators' Assessment of SIST's Effectiveness, and SIST's Self-Assessment.

1. Teachers' Assessment of SIST's Effectiveness

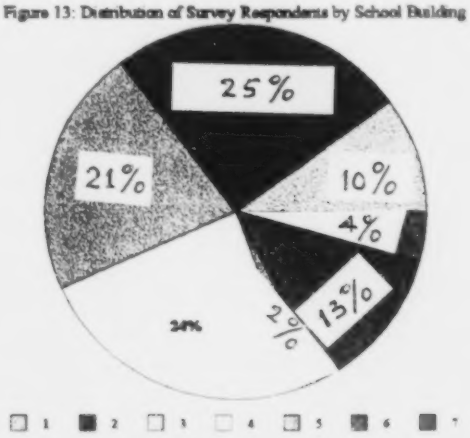
Return Rate: CRE documented an average return rate of 71 percent on the teachers' survey. At Barnard, Bucks Hill, and Driggs the rate of return was at or above 100 percent. At Chase the return rate was above average. At Walsh and Wilson, the rate of return was slightly above average. At Hopeville, the rate of return was approximately 13 percent.

Building Assignment: Distribution of survey respondents at the seven participating schools.

Building		# Classroom Teachers	# SIST Participants	# Survey Respondents	% Respondents per Building	% Distribution per Building
1	Barnard	13	14	14	100%	10%
2	Bucks Hill	27	28	35	125%*	25%
3	Chase	33	36	30	83%	21%
4	Driggs	33	29	34	117%*	24%
5	Hopeville	24	24	3	13%	2%
6	Walsh	27	29	18	62%	13%
7	Wilson	12	11	6	55%	4%

Note: Asterisk (*) indicates that respondent indicates that the group of educators participating in SIST includes not only regular classroom teachers, but also specialists.

Figure 13: Distribution of Survey Respondents by School Building



Summary: Based on the percentage rate of buildings in the response group, teachers from Bucks Hill, Chase, and Driggs represent 75% of the response group. The remaining 25% consists of responses from Barnard, Hopeville, Walsh, and Wilson. Ninety-nine percent, (99%), of the respondents are classroom teachers. The one exception is a first year administrator at Barnard School, who had been a classroom teacher for 23 years previous to the current assignment.

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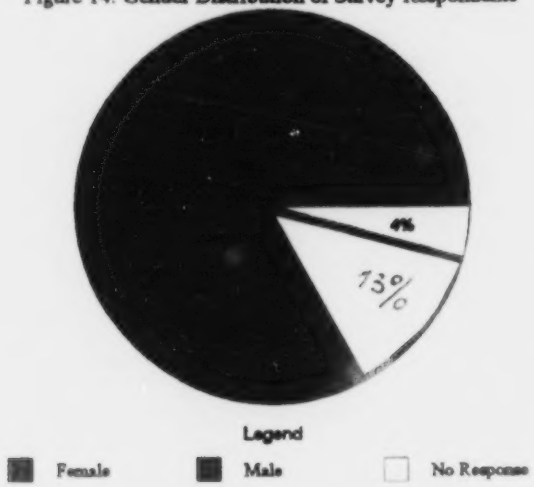
Gender: Eighty-six percent, (86%), of the survey respondents are female. Nearly all the respondents, (89 - 100%), from Driggs, Hopeville, and Walsh Schools are female. The largest percentage of male respondents is 29% at Barnard School.

Figure 14: Gender Distribution of Survey Respondents



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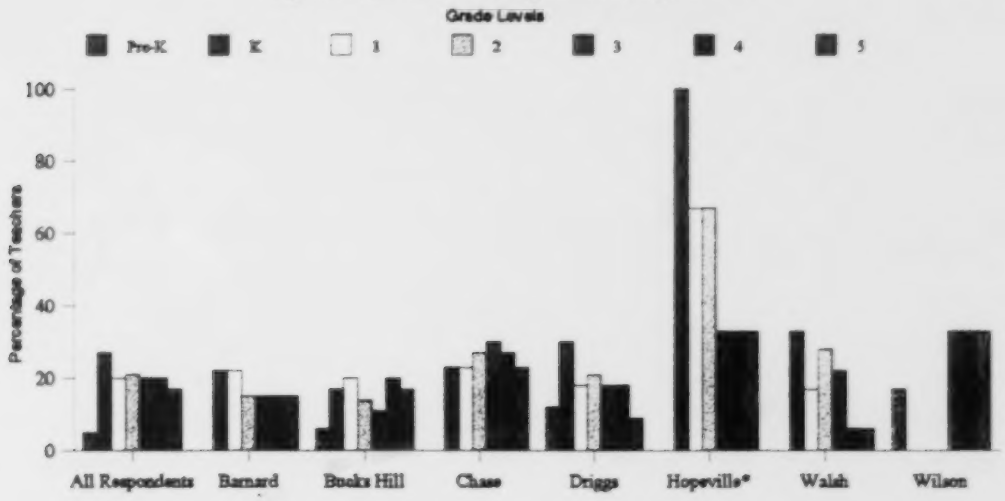
Grades Currently Assigned: The following two charts concern the percentage of respondents assigned to teach at each grade level from Pre-K to fifth grade. In most schools the grade level distribution is roughly equal, with the exception of Walsh, which has a greater percentage of primary grade teachers responding and Wilson, at which the only representation in the primary grades is from the Pre-K teachers. Total percentages exceed 100, because some respondents are responsible for teaching more than one grade.

Figure 15: Grade Level Assignment of Respondents

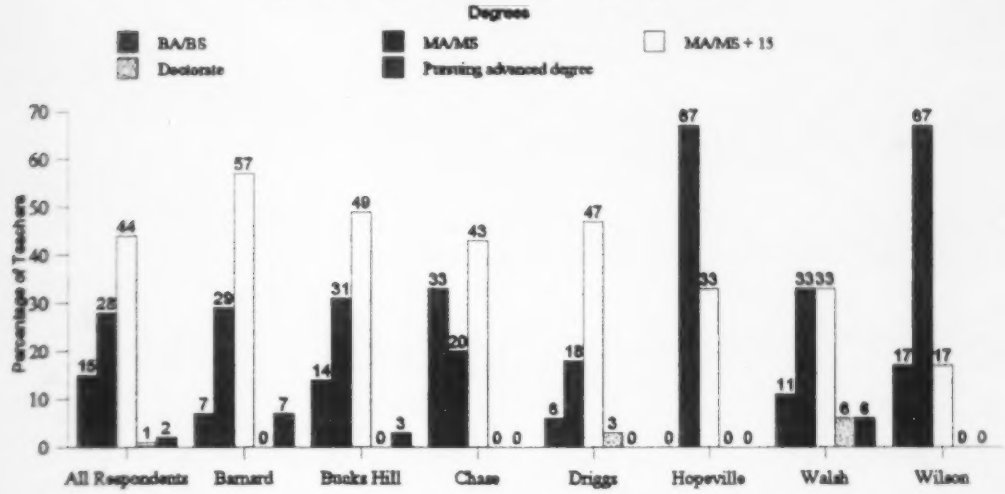


Grade Level Assignment of Respondents								
Response Groups	# of Respondents	Grade Levels						
		Pre-K	*K*	*1*	*2*	*3*	*4*	*5*
All Respondents	140	5%	27%	20%	21%	20%	20%	17%
Barnard	14	0	22%	22%	15%	15%	15%	15%
Bucks Hill	35	6%	17%	20%	14%	11%	20%	17%
Chase	30	0	23%	23%	27%	30%	27%	23%
Driggs	34	12%	30%	18%	21%	18%	18%	9%
Hopeville*	3	0	100%	67%	67%	33%	33%	33%
Walsh	18	0	33%	17%	28%	22%	6%	6%
Wilson	6	17%	0	0	0	33%	33%	33%

Note: Asterisk (*) reminds readers that percent distribution is based on only a total of three respondents from Hopeville.

Highest Degree: The following chart addresses the percentage of responding teachers who have reached particular degree levels. The largest percentage of respondents in each school has completed a Masters program and beyond. Chase has the largest number of teachers who have recently received the Bachelors degree.

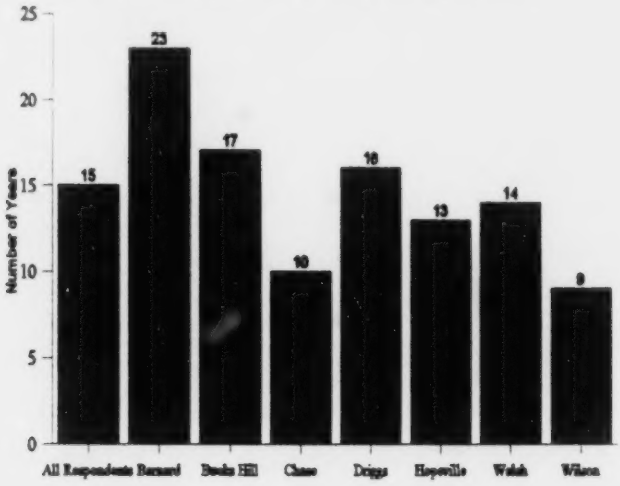
Figure 16: Highest Degree Received by Respondents



Note: Zero (0) indicates no response recorded by respondents in that category.

Years of Teaching: The average number of years of teaching experience per building varies from 9 to 23 years, with Barnard School having the most experienced teachers and Wilson having teachers with the least number of years of experience.

Figure 17: Average Number of Years of Teaching Experience



How many SIST Workshops for language arts and math did you attend? Teachers who responded at every school attended at least one workshop in each component. Teachers at Barnard attended the greatest number of workshops. Documentation indicates that a majority of Barnard's respondents attended five or more workshops in each component.

Figure 18: Attendance at Language Arts Workshops

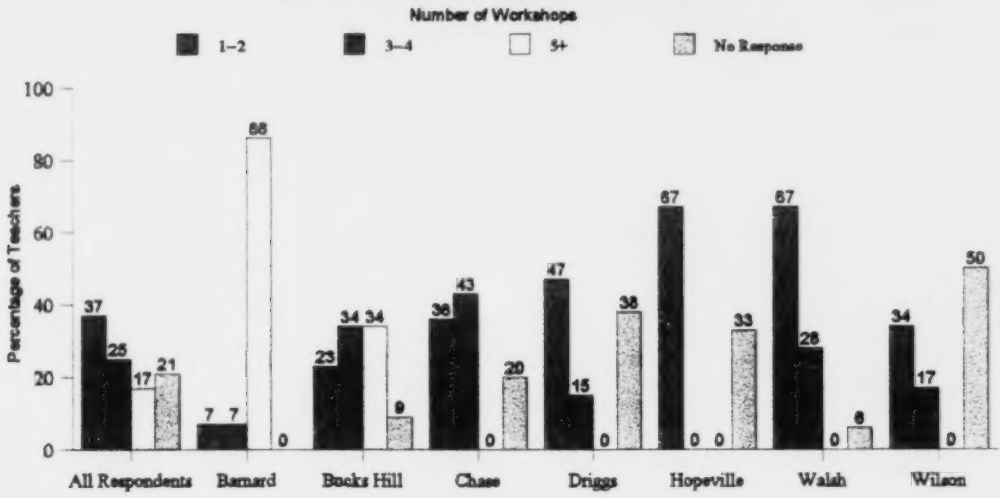
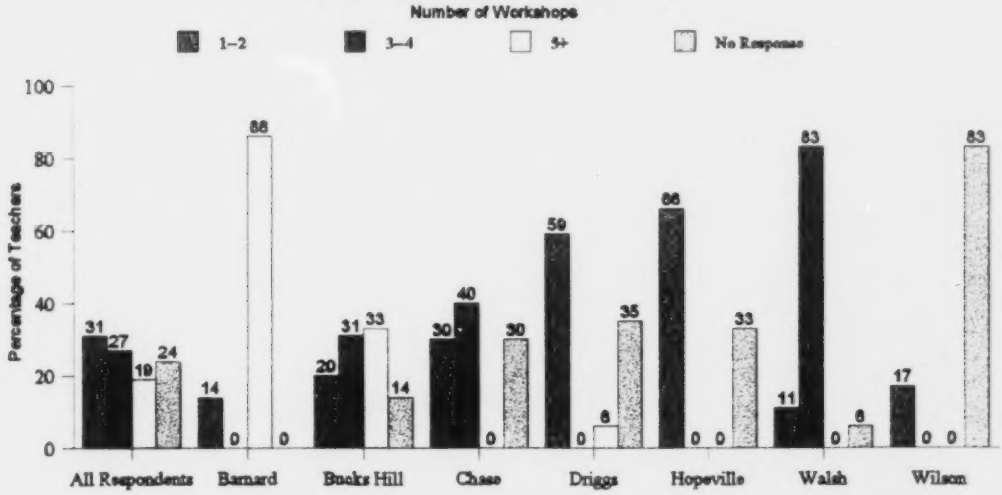


Figure 19: Attendance at Math Workshops



Note: zero (0) indicates no response recorded by respondents in that category. The category of "No Response" for the above charts indicates that either teachers did not enter a response or that the question was not applicable to their situation. Also, totals in both charts do not always equal 100%, due to the rounding of numbers.

How many times did you take the opportunity to watch the language arts and math consultants teach? Although less than half of the survey respondents answered this item, those that did provide answers indicated that they had watched the consultants teach at least once during the initiative. More than half of the responding teachers at Bucks Hill, Chase, and Wilson indicated that they had watched the language arts consultant teach. A similarly high percentage of responding teachers at Barnard, Bucks Hill, and Chase took the opportunity to watch the math consultant teach.

Figure 20: Opportunities Taken to Watch Language Arts Consultant Teach

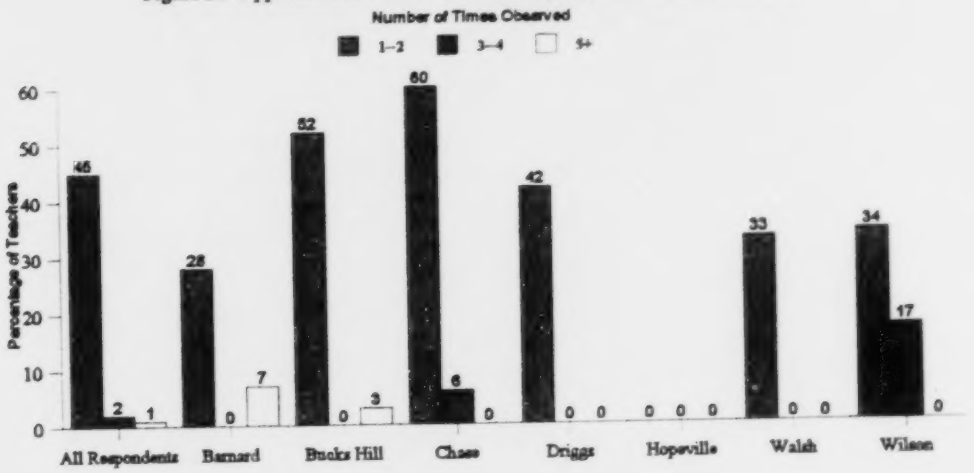
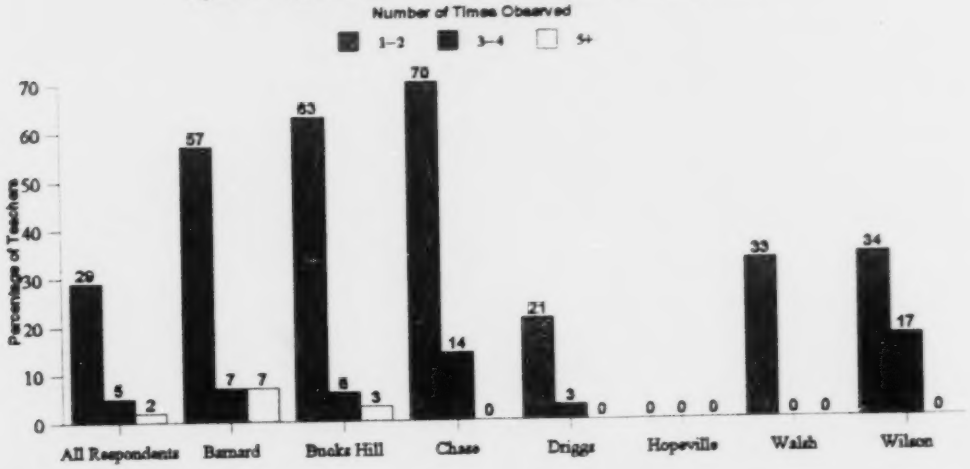


Figure 21: Opportunities Taken to Watch Math Consultant Teach



Note: Zero (0) indicates no response recorded by respondents in that category. Also, the response from all respondents was less than 50%, but analysis of data within individual buildings shows that in some schools the response rate on this item is high. In contrast, within Hopeville, the response rate is zero.

How often did you meet with the consultants to discuss the workshop's implications for your classroom teaching? At five of the elementary schools, less than 40% of the respondents answered this item. Only at Barnard and Bucks Hill did more than 50% of the respondents provide data. The average amount of time that teachers at Barnard and Bucks Hill said that they discussed the implications of the workshops for classroom teaching was 3 times.

Overall Assessment of the SIST Workshops: In general, the majority of all respondents were in agreement with each item concerning overall assessment. Analysis of data within the individual buildings shows that most respondents at Barnard and Bucks Hill agree with each item concerning overall assessment. Conversely, few of the respondents at Driggs agreed with this overall assessment of SIST workshops.

Percentage of Respondents in Agreement with Each Item						
Survey Group	The SIST Workshops were:					
	up-to-date	timely	well-organized	well-managed	effectively implemented	meeting my needs
All Respondents	73%	62%	55%	60%	55%	54%
Barnard	93%	93%	86%	93%	93%	86%
Bucks Hill	97%	98%	92%	94%	95%	94%
Chase	73%	46%	27%	43%	70%	27%
Driggs	32%	18%	21%	24%	18%	15%
Hopeville	67%	67%	67%	67%	67%	33%
Walsh	94%	89%	72%	72%	66%	77%
Wilson	50%	34%	50%	17%	17%	50%

Teachers' comments on overall assessment of SIST workshops: In written comments, teachers identified Linda Ball and Pamela Barker Jones as effective math consultants. A list of common terms used by teachers to describe the work of Ball and Jones includes: very productive, informative, interesting, down-to-earth, an excellent resource, gave great ideas, was always available or accessible, and very helpful. Additionally, teachers repeated these positive terms when they were asked to identify what were the strengths of the math component.

In their written comments, teachers reported that the weaknesses of SIST's math component are: organization of the program and scheduling of activities with schools was incomplete, awkward, and ineffective; too little sustained time in the buildings; substitute teachers were not always available; presentations were not effectively organized; consultants don't face

difficulties of disciplining children and, thus, sometimes come across as out-of-touch with the realities of urban education.

In contrast, many teachers identified Joe Cellizza as less-than-effective as the language arts consultant. A list of terms frequently used by teachers to describe Celliza's work includes: worthless workshops, out of touch with CMT needs, not enough substance, too much time focused on retelling stories, dry, and too philosophical.

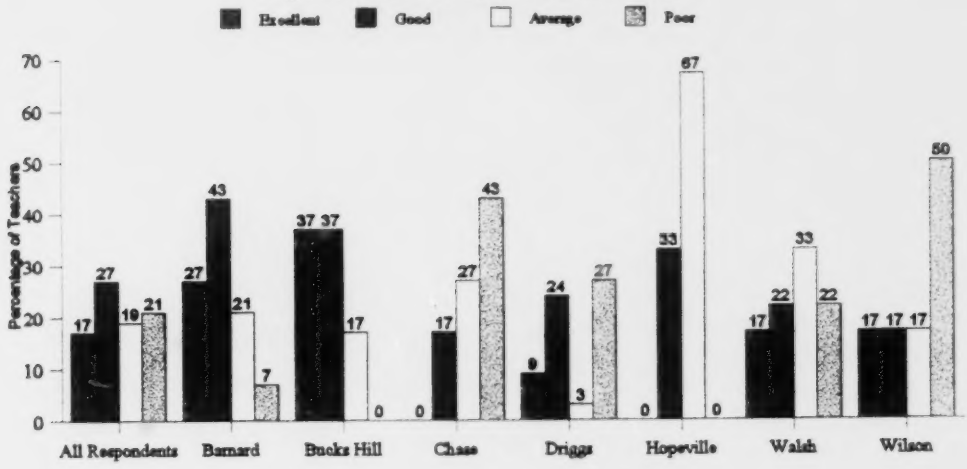
Paradoxically, some teachers expressed modest satisfaction with both the math and language arts components, some teachers were pleased with workshops presented by Joe Cellizza, and a substantial group of teachers expressed very strong dissatisfaction with both the math and language arts components. Satisfied teachers emphasized in general terms the usefulness of the methods and materials for their classroom practice.

Dissatisfied teachers wrote that they were not favorably impressed with any of the workshops; saw no evidence of a strategic plan from SIST for building-level technical assistance; saw no obvious links with previous building-level professional development activity; reported that some of their colleagues would be better presenters; reported that workshop presenters should have immediate, practical experience with teaching the grades for which their workshops apply. Comments from dissatisfied teachers came from all of the different schools, but were especially common to buildings where the analysis of quantitative data also reveals a strong, critical perspective regarding SIST.

Finally, teachers stressed that the Connecticut Academy should have been more careful in its hiring of consultants—especially concerning the assessment specialists (the Johnsons)—in order to present assessment effectively to the teachers. Additionally, teachers noted that, when the Johnsons were removed from the program, the Connecticut Academy should have continued the assessment component with other, qualified personnel, instead of dropping it from the program. Also, teachers noted that the absence of an orienting and sustained focus on student performance data in reference to teachers' professional development meant that, in the end, the teachers cannot tell how to determine or what should be done to improve students' performance on the CMT.

How would you assess the overall effectiveness of these workshops? Teachers were asked to reflect on SIST's overall effectiveness. Across all the survey respondents, 17% assessed the workshops' overall effectiveness as excellent, 27% assessed them as good, 19% assessed them as average, and 21% assessed them as poor. The data from individual buildings shows that a substantial percentage of respondents assessed the workshops as good to poor.

Figure 22: Overall Effectiveness of Workshops



Note: Zero (0) indicates no response recorded by respondents in that category.

SIST Consultant's Effectiveness: Analysis indicates that a majority of all respondents agreed that consultants were enthusiastic about their topics and eager to help. The area of consultants' greatest weakness was in their demonstration of instructional technology. Within individual buildings, teachers at Barnard and Bucks Hill expressed a more positive view of the consultants' effectiveness than teachers at the other five elementary schools. Teachers at Driggs expressed the least positive views of consultants' effectiveness.

Percentage of Respondents in Agreement with Each Item*										
Survey Group	1	2	3	4	5	6	7	8	9	10
All Respondents	67%	73%	75%	66%	64%	61%	64%	67%	43%	61%
Barnard	93%	100%	100%	86%	93%	93%	100%	100%	79%	92%
Bucks Hill	94%	97%	95%	91%	94%	97%	94%	89%	86%	94%
H.S. Chase	47%	67%	73%	56%	53%	80%	66%	70%	60%	50%
Driggs	33%	33%	36%	33%	27%	27%	24%	24%	9%	33%
Hopeville	100%	100%	66%	100%	33%	33%	33%	33%	0	0
Walsh	83%	83%	83%	78%	77%	72%	55%	80%	55%	61%
Wilson	67%	100%	100%	50%	50%	34%	67%	84%	34%	89%

***The SIST Consultants were:**

1 Effective with presentation skills?
2 Enthusiastic about the topics?
3 Eager to help you?
4 Well prepared, in regard to relevant content knowledge?
5 Equipped with good teaching ideas - for your purposes?
6 Effective with classroom modeling?
7 Effective when interacting with different people in school?
8 Effective when demonstrating use of manipulative?
9 Effective when demonstrating use of technology?
10 Effective when adapting to schedules and school issues?

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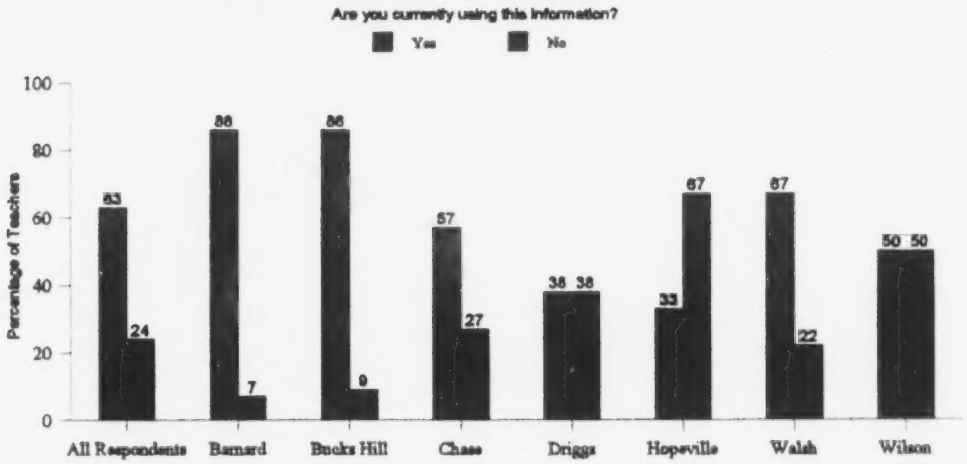
Impact on Teaching: Analysis of data across all respondents shows that more than 50% of the teachers perceived the methods and materials that were presented at the workshops to be new or that they were fresh and understandable. Analysis of data within individual buildings shows that a majority of respondents from Barnard, Bucks Hill, and Walsh expressed similar positive perceptions regarding the methods and materials introduced in the workshops. However, at Chase, Driggs, Hopeville, and Wilson less than half of the teachers' reported that the methods and materials were new or that they were presented in a fresh and understandable format.

Percentage of Respondents in Agreement with Each Item		
Survey Group	The SIST workshops:	
	were filled with new methods and materials	contained familiar methods and materials presented in a fresh and understandable format
All Respondents	55%	53%
Barnard	86%	93%
Bucks Hill	80%	83%
Chase	44%	26%
Driggs	27%	27%
Hopeville	33%	33%
Walsh	72%	66%
Wilson	17%	34%

Have you started using some of the methods and materials you have encountered in the workshops? Across all respondents, analysis of data shows that a majority (63%) of the teachers have begun using the methods and materials presented in the workshops. Analysis of data within schools shows that at Driggs and Hopeville less than half of the teachers are currently making use of this information.

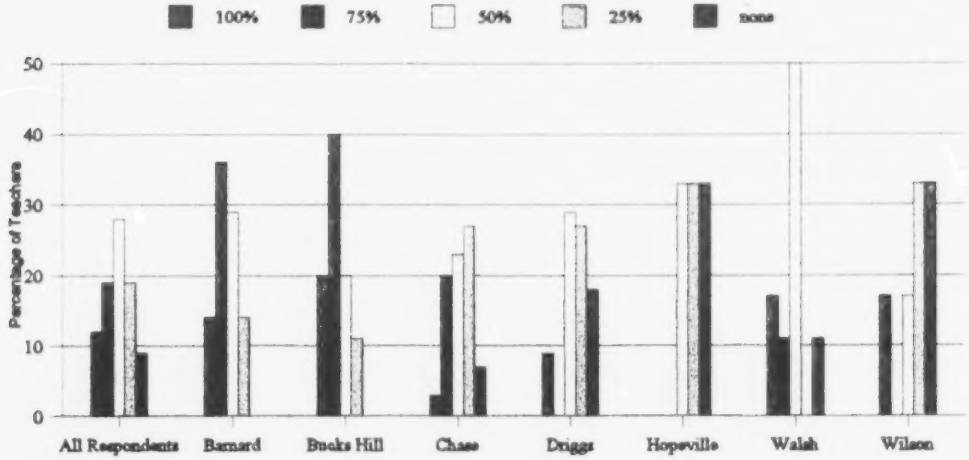
Figure 23: Current Use of Presented Methods and Materials



Note: percentages for the above items do not equal 100% because not every respondent answered the question.

How much of the SIST methods and materials do you plan to use next year? Analysis of data shows that approximately 50% of all respondents anticipate that, next year, they will use from 25 to 50% of the SIST methods and materials. Thirty-one percent (31%) of all respondents reported that they anticipate using between 75 to 100% of the methods and materials. Analysis of data within buildings shows that at Barnard and Bucks Hill half of the respondents anticipate using between 75 to 100% of these methods and materials. However, at the other five elementary schools a majority reported that, next year, they anticipate that they will use only 25 to 50% of these methods and materials. Additionally, at Hopeville and Wilson, 33% of respondents indicate that, next year, they will not be using any of the methods and materials presented at the workshops.

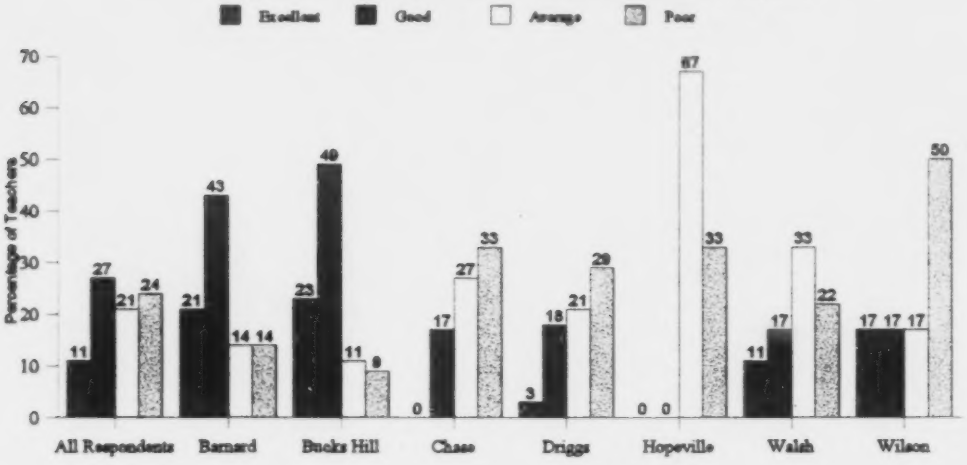
Figure 24: Future Use of Presented Methods and Materials



Note: Zero (0) indicates no response recorded by respondents in that category. Also, percentages for the above items do not equal 100% because not every respondent answered the question.

Assess the workshops contribution to your professional development: The analysis of data from all respondents shows that a majority of all respondents found the workshops' contribution to their professional development to be from good to average. At Barnard 21% and at Bucks Hill 23% of the respondents found the workshops' contribution to be excellent. Conversely, in the remaining buildings from 22% to 50% of the respondents indicated that the initiative's contribution to their professional development was poor.

Figure 25: Workshops Contributions to Professional Development



Note: Zero (0) indicates no response recorded by respondents in that category. Also, percentages for the above items do not equal 100% because not every respondent answered the question.

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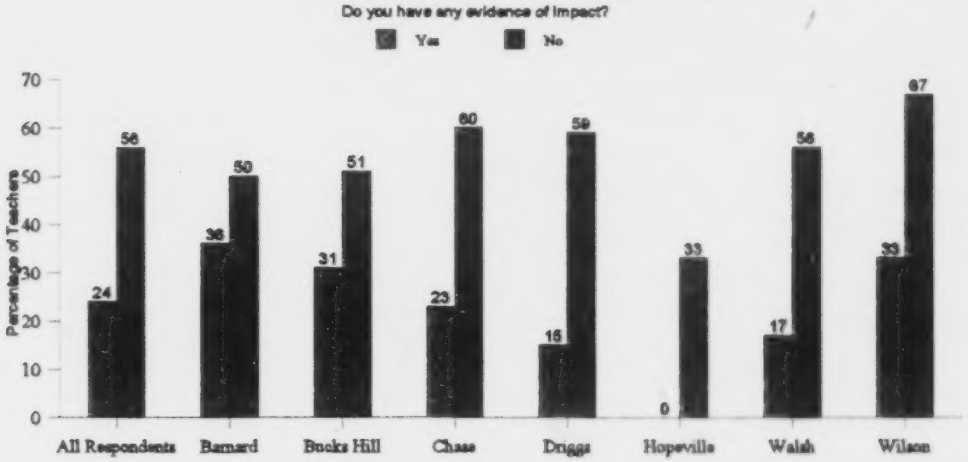
Do you have any evidence, thus far, that these methods and materials are improving students achievement? The chart clearly indicates that more than half of the respondents in all of the buildings do not have any evidence that the workshops' methods and materials are improving students' achievement.

Figure 26: Impact on Student Achievement



Note: Zero (0) indicates no response recorded by respondents in that category. Also, percentages for the above items do not equal 100% because not every respondent answered the question.

Teachers' comments on SIST's impact on students learning: In general, teachers indicated that they do not expect that the SIST workshops will have much, if any, impact on students' learning. The most immediate positive impact on students' learning that teachers reported was that students appeared to be more motivated and more interested in doing math, for example, with the manipulatives and related hands-on activities. Clearly, some teachers had been rejuvenated by the workshops and said that they hoped that their own excitement about the methods and materials would have a positive impact on the children's learning.

However, many teachers reported that they had been introduced to these methods and materials previously, thus, they saw very little if anything "new" in the workshops. In other words, more of the same classroom instruction would not contribute to significant changes in students' learning. Others reported that they had implemented these practices prior to SIST. The teachers who expressed critical comments described the consultants' workshops as redundant and the presenters as not particularly well-informed about the staff's strengths and weaknesses or the students' CMT performance records. Thus, they reiterated that SIST's impact on students' learning was doubtful.

Additionally, many teachers—including those who were generally pleased with the workshops—repeated their frustration and disappointment with SIST's organization, scheduling, use of substitute teachers, and loose coupling with building needs. Many teachers recognized and applauded the idea of strategic professional development. They were disappointed with its implementation in their buildings.

Contribution to Building-Level Improvement: Analysis of data across all respondents, shows that the only item on which more than 50% of the teachers expressed agreement concerned the initiative's increase of building-level expectations regarding professional development. Additionally, data shows that SIST did not have a substantial impact on building-level improvement, except at Barnard and Bucks Hill. Data indicates that Barnard and Bucks Hill are the only schools that have a substantial percentage of teachers for whom SIST created a strong expectation that the initiative should continue in the future.

Percentage of Respondents in Agreement with Each Item				
Survey Group	The SIST workshops:			
	Increased building level expectations regarding professional development.	Created a favorable response among all teachers.	Created a favorable response among all teachers	Created a strong expectation to continue SIST in the future
All Respondents	52%	45%	47%	39%
Barnard	93%	87%	93%	86%
Bucks Hill	85%	82%	80%	77%
H.S. Chase	43%	37%	40%	17%
Driggs	17%	12%	18%	9%
Hopeville	33%	0	0	0
Walsh	39%	28%	17%	28%
Wilson	50%	34%	51%	34%

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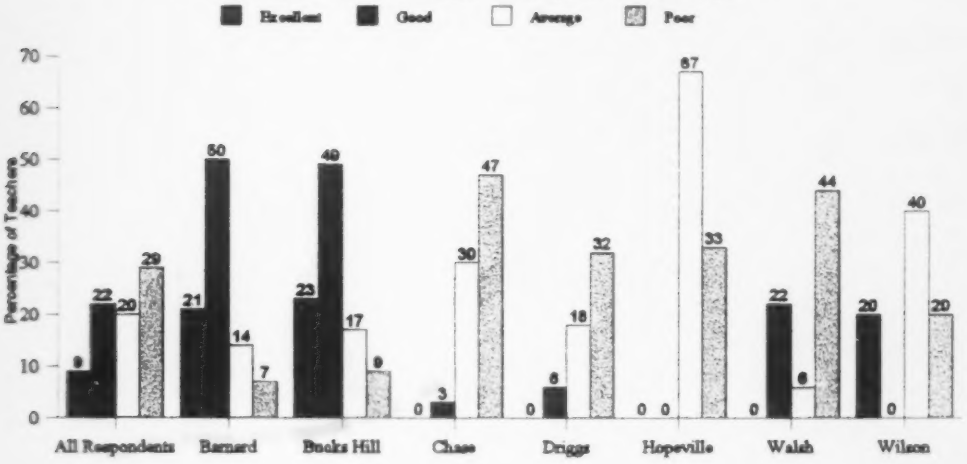
Assess the overall building-level response to SIST workshops: Analysis of data across all respondents shows that approximately half of the teachers (49%) found the SIST workshops to be average to poor. This perception was also true of data analysis within buildings, with the exception of teachers at Barnard and Bucks Hill.

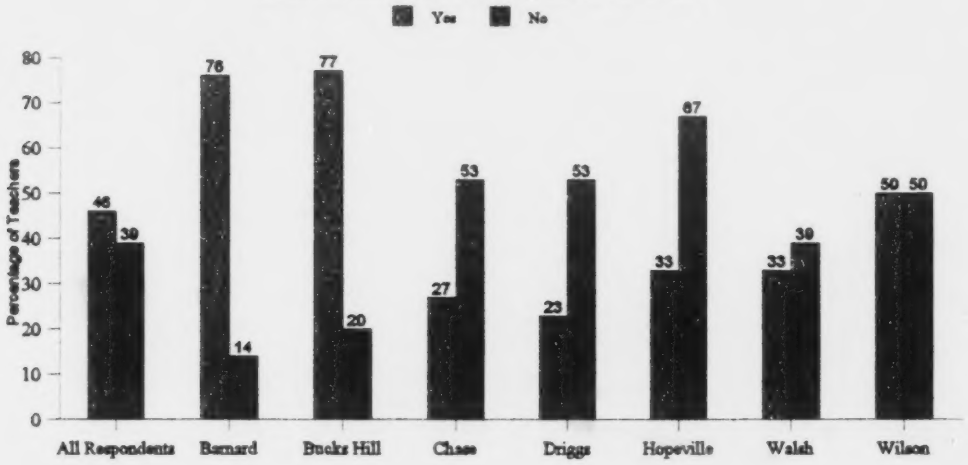
Figure 27: Overall Building-Level Response to Workshops



Note: Zero (0) indicates no response recorded by respondents in that category. Also, percentages for the above items do not equal 100% because not every respondent answered the question.

Should SIST workshops continue in the immediate future? Analysis of data across all respondents shows that 46% felt that this initiative should continue in the immediate future. However, analysis of data within buildings shows some interesting contrasts. At Barnard and Bucks Hill there is a great majority of respondents who said that the workshops should continue. At Walsh and Wilson, on the other hand, respondents are equally divided on the question of SIST's continuation. Additionally, at Chase, Driggs, and Hopeville, the majority of respondents said that SIST workshops should not continue.

Figure 28: Should the SIST Workshops Continue?



Teachers' comments on continuation of SIST workshops in the future: Approximately 25% of the teachers said that continuation of SIST workshops in the future would be beneficial for their classroom practice. They said that SIST would keep teachers up-to-date on useful methods and materials.

A large majority of teachers expressed dissatisfaction with SIST's operations, personnel, content, and scheduling. A small number of teachers bluntly described SIST as a waste of time and money for the Waterbury Public Schools.

However, teachers who expressed constructive criticism were more common in the data set. These individuals noted that they would be interested in SIST's continuation, but it would have to change its program substantially, in order to appropriately address their instructional needs. These critics offered specific and relevant recommendations for improving SIST. Indeed, as the following list from the teachers reveals, there is substantial overlap with recommendations from the school administrators. (See next section for comparison.)

Teachers' Recommendations for Continuation of SIST: Included among the teachers' recommendations for SIST's continuation are:

- begin workshops earlier in the school year
- improve communications and avoid conflicts with teachers, principals, and central office
- eliminate scheduling problems by adopting a design that works for each building
- design workshops for specific grade levels; do not lump all teachers together, because pre-kindergarten, kindergarten, primary grade teachers, and intermediate level teachers have very different instructional programs and needs for technical assistance
- prior to implementing the program, clarify the program's purpose, prepare a specific plan targeted to each building, and publicize this plan for teachers and principals
- work with a smaller number of buildings and emphasize accountability and effectiveness for SIST prior to moving to other elementary schools
- provide more days and more sustained time periods for quality inservice
- bring to teachers many genuinely new ideas that are practical and relevant to their workplace circumstances
- design and implement grade-level-specific intervention strategies for teachers to use to help improve students' performance on the CMT
- organize more grade level meetings for open discussion of instruction, what works, what does not work, and problem solving
- organize the program for consistent support from substitute teachers.

2. Administrators' Assessment of SIST's Effectiveness

Documentation in this section is from interviews that CRE conducted with building principals assigned to Barnard, Bucks Hill, Chase, Driggs, Hopeville, and Walsh elementary schools, and with the assistant superintendent. The interview questions pertain to the contract that Waterbury Public Schools signed with the Connecticut Academy.

Briefly, analysis of data indicates that there is a high level of agreement across the different school administrators. These administrators stressed that they are in regular contact with each other and that, as a result, their perceptions of the issues associated with SIST are commonly understood and well-supported. Additionally, administrators expressed strong support for the SIST concept. They explained that a strategic, consistent, and sustained building-level approach to professional development is the key to their success with improving students' performance with basic skills, especially those that are emphasized by the CMT. The assistant superintendent said that he chose these seven elementary schools for SIST because these schools need assistance and their staffs are in a good position to employ data based decision-making for curriculum development, assessment, and professional development, in order to improve students' performance on the CMT.

Thus, Waterbury school administrators welcomed assistance from SIST. Additionally, they provided an opportunity for the intervention program to unfold in their schools. However, analysis of data shows that administrators assessed SIST's overall performance as mixed (some high marks and many low marks), with an overall rating of six on a ten-point scale—slightly above average.

In the following section, there is summary documentation from each of the questions used in the interviews with administrators.

A. Status of the Elementary School Curriculum

To what extent are the elementary mathematics and language curricula comprehensive, that is, developed fully for all grades? Administrators report that the Waterbury Public Schools completed the K-5 mathematics curriculum during the current school year and had completed the K-5 language arts curriculum during the 1996-97 school year. Each school has the formal curriculum posted clearly and prominently, for practitioners and visitors to read. In fall 1999, each classroom will have its own poster of the formal curriculum.

Are the elementary mathematics and language arts curricula based on the Connecticut curriculum frameworks? Yes. Administrators report that the mathematics and language arts curricula are based on national and state standards and on the Connecticut curriculum frameworks.

B. Status of Elementary Teachers' Practice Relative to Curriculum

To what extent are elementary teachers' instructional practices in mathematics and language arts are consistent with the curricula in these areas? Administrators reported that the extent to which elementary teachers' instructional practices in mathematics and language arts are

consistent with the formally adopted curricula in these areas varies by the building and by the individual teacher. However, principals stressed that, in general, their teachers follow the newly adopted curricula. Principals also reported that teachers are more likely to follow the curricula now than in the recent past, because of the specific detail in the curricula, the obvious linkages with objectives in the CMT, and the current opportunity for building-level analysis of CMT assessment data. Additionally, principals report that the teachers are highly interested in assistance with materials and methods that will help them to implement the new curricula.

Principals and the assistant superintendent said that they had expected SIST to help teachers improve their ability to match instructional practices with students' needs—consistent with individual building needs—and to provide up-to-date, challenging, and motivating materials and methods to the students. However, administrators reported that, for a variety of reasons, they were disappointed with the implementation of SIST. Chief among their concerns were shortcomings which they observed in the following areas: purpose, organization, scheduling, appropriateness of content, and style. (For more discussion of this issue, see sections E and F below.)

C. Faculty Transfer/Retirement Rate

What percentage of elementary faculty transferred out of schools during 1996-97, 1997-98, and 1998-99? Administrators reported that faculty transfer and retirement occur at very low levels in these seven elementary schools. Thus, staff turnover at the building level is low to nonexistent, contributing to a more or less stable environment, as far as staffing is concerned.

D. Assessment of Students' Performance

How do the administrators assess students' current performance in mathematics, as measured by the CMT? Administrators reported that students' performance on the mathematics portion of the CMT is low across all elementary schools, but that it is consistent with the performance of students who attend public schools in Connecticut's other urban communities.

These administrators also said that the consistently low performance rating, especially on some objectives or specific skills, is ample justification for employing a strategic approach to teachers' professional development. The administrators said that they were in full agreement with the idea behind SIST. However, they reiterated that they were very concerned about its implementation, which they said fell short of their expectations.

How do the administrators assess students' current performance in language arts, as measured by the CMT? Administrators reported that students' performance on the language arts portion of the CMT was low, which is consistent with performance ratings in other urban communities in Connecticut. However, they reported that students' performance in some instances (for example, Barnard) exceeded the city's average. This positive result the administrators attributed to their concentrated attention to improving the language arts curriculum, consistent with the CMT and curriculum frameworks. Although administrators expressed disappointment with both math and language arts components of SIST (math at

Driggs and Hopeville was the exception), they were especially disappointed with language arts.

E. Assessment of SIST's Effectiveness

What is the overall assessment of SIST? In other words, how effective was this professional development program at meeting the elementary teachers' instructional needs? Administrators assessed SIST's overall performance as mixed. A summary of the administrators' assessment follows.

- Math workshops were much better than the language arts workshops.
- As a result of the mixed performance from the technical assistance providers, teachers and administrators recognized the importance of focusing their attention on analysis of CMT data and taking responsibility themselves for planning a strategic professional development program for their buildings.
- There was good coverage for the fourth and fifth grade teachers, but little or nothing for the Pre-K to third grade teachers.
- Presenters did not adequately study building-level CMT records, in order to model data based decision-making and to provide workshops based on building-level needs (Driggs and Hopeville were exceptions).
- Some presenters cooperated with principals and teachers, others did not, which led to misunderstanding about the purpose, scheduling problems, and frustration.
- Frequently, workshops included outdated materials and familiar methods.
- In some instances, the workshop presenters' language and mannerisms were perceived by teachers and administrators as demeaning, insulting, and counterproductive.
- The assessment component—perceived by administrators to be the most important element—failed from the beginning because the presenters' (the Johnsons) used a top-down, authoritative approach. This component was discontinued. The Johnsons were described by administrators as poorly informed about urban education, "acting as though they were better than anybody else in education," and expecting Waterbury's teachers and administrators to "toe the line."

Did SIST accomplish its purpose at a satisfactory level? Administrators gave SIST a qualified score of six, in a ten-point scale, indicating that it was slightly above average with respect to what they classified as "satisfactory." The administrators said that they were expecting an outstanding performance from SIST.

To what extent did the mathematics and language arts components of SIST accomplish their purposes? Administrators described the mathematics component as excellent at Driggs and Hopeville, especially for the upper grades. The workshop presenter knew her material, adjusted the workshops to the teachers' varying needs, used excellent communication skills, and consulted regularly with the principals. The administrators assessed the math component at the other schools as satisfactory for fourth and fifth grade teachers and not effective for Kindergarten, first, and second grade teachers.

The language arts component was perceived by administrators and teachers as disappointing and a waste of time for everyone.

How did the teachers respond to the mathematics and language arts components of SIST? Administrators said that all of the teachers were somewhat apprehensive about the math and language arts components, a response which they would naturally have toward any new program or outside agency. The administrators said that, despite the apprehension, their teachers were looking forward to receiving the technical assistance that was promised.

At Driggs and Hopeville the teachers immediately accepted the math workshop presenter and worked with her as often as their schedules allowed. In the other schools, the mathematics workshops were basically accepted by the teachers.

However, administrators said that when the teachers discovered what the language arts presenter offered, they went back to their classrooms and would attend workshops only when required to do so. The administrators explained that the teachers responded in this manner because they already knew this material, they did not need theory emphasized to such an extent, most of the materials were outdated, and they could do as well or better themselves. Administrators said that they concurred with the teachers' opinion of the language arts consultant.

What are the most valuable aspects of SIST? Administrators said that the most important lesson from SIST is that they and their teachers could understand better that their schools need a sustained, consistent, and strategic approach to professional development. In other words, subsequent to the implementation of SIST, the teachers and principals learned the importance of focused, strategic professional development for tackling the issues they faced in curriculum, instruction, and assessment.

Additionally, principals said that, as a result of watching SIST unfold this past year, they and their staffs recognized their own strengths and resolved to utilize teachers, who worked in their buildings, for workshops and co-teaching. Also, principals said that, when the SIST consultants were effective with organizing discussion sessions with teachers, it gave the teachers a good opportunity to meet and discuss common problems with regard to improving students' performance on the CMT. Principals said that they recognized the importance of these peer group discussions and that, in the future, they will provide more opportunities for "sit and talk" sessions, where teachers will discuss common issues and adopt effective solutions.

Administrators commended Pamela Barker Jones for her exceptional ability to motivate teachers and to present useful methods and materials for mathematics instruction. They said that Ms. Barker Jones provided the example of technical assistance that everyone was expecting in the SIST program.

What, if any, are the weaknesses or issues associated with SIST? In general, administrators were not pleased with SIST's implementation. The major concerns about SIST that administrators identified were:

- poor preparation for implementing SIST at different buildings—e.g., program did not

emphasize or model data based decision-making for technical assistance, and created instead the impression of SIST as a casual approach to professional development.

- unclear statement of purpose for SIST
- lacking direction for SIST from the beginning of its implementation to the conclusion
- too few organizational meetings between principals and representatives from the Connecticut Academy for the purpose of formulating a specific, working plan
- program hired consultants who lacked experience with urban schools, especially Pre-K-5
- program was not revised nor were effective personnel employed when principals voiced complaints
- some consultants provided a weak response to individual teachers and principals, and the prevailing circumstances at the various sites
- consultants did not coordinate and update workshop schedules routinely with building principals
- some consultants used negative speech toward teachers and administrators
- some consultants were inappropriately matched to grades (especially grades K-3)
- some consultants used outdated materials and methods (especially in language arts)
- consultants who were responsible for the assessment component got off to a bad start and the program did not continue this aspect of SIST.

Additionally, a majority of the administrators described Joe Cellizza's performance with technical assistance in language arts as too academic. Analysis of data from teachers supports the administrators' assessment of the language arts component.

Will you rely on SIST for your teachers' professional development next year? The administrators stated emphatically that they do not want SIST to return to their buildings with the same personnel, the same content, and the same processes that were used during the 1998-99 school year. In general, this approach did not work well in the elementary schools. The administrators stated that they recognize fully the integrity of the SIST concept. They said that this is exactly the kind of professional development that they need. However, they would rather do this work themselves, than have the SIST program repeated. Administrators said that they will welcome SIST's return, if the following conditions are met by the Connecticut Academy:

- consultants are highly qualified for the job
- the revised SIST program is consistent with building- and district-level expectations
- planning for the new SIST program responds effectively to the district's critique.

F. Recommendations for Improvement

What recommendations can you offer to improve the SIST program for the Waterbury Public Schools? Administrators offered the following specific recommendations for improving SIST. There is no order of importance implied in this list.

Administrators said that SIST should do the following:

- Emphasize strategic planning in advance of implementing the program in a particular building.

- Accentuate ongoing collaborative leadership with principals, for identification of building-level needs and follow-through.
- Formally design the SIST program for building-level technical assistance, make it clear to teachers and administrators what the program entails, and implement the program according to the plan.
- Emphasize what works. Demonstrate methods and materials that help urban children to learn reading, writing, and/or mathematics.
- Hire top quality consultants with expertise in specific areas of need.
- Employ better organizational skills for more effective programming, hiring, personnel management, scheduling, and access to or encounter with the local site.
- Take into account the different sizes of buildings (i.e., student enrollment and faculty levels) when planning the program. Be more flexible and inventive—don't adopt the same general plan for every building regardless of its size. Make the SIST program equitable for all buildings.
- Maintain better control of substitute teachers, including using alternative strategies when substitute teachers are not available or for when they are in short supply.
- Provide better examples for using CMT data strategically in order to plan and to implement effective lessons and to conduct follow-up activity, including assessment.
- Organize the building-level SIST program for maximum positive impact on all of the teachers, within a sustained period of time. Do not make workshops and other events optional without the principal's agreement. Do not plan on working with teachers for one or two days per week, as was done in 1999. This is an insufficient amount of time, is counterproductive in the long term, and sacrifices both continuity and momentum.
- Organize and facilitate a sufficient number of discussion sessions, during which teachers describe common issues and propose effective solutions.
- Teachers and consultants need to develop respect for one another, which takes finely developed personal relations skills on the part of the consultants. Also, it takes time to develop trust.
- Do not employ the hit-and-miss approach, suggesting that topics are up to chance or that any topic, lesson, or material will do for all children in a class or for all grades.
- Consultants and teachers should collaborate for teaching; for sharing and modeling sessions; and for resolving issues, such as scheduling or substitute teachers.

3. SIST's Self-Assessment

In this section, there is documentation pertaining to the consultants' performance with the SIST initiative in the seven identified elementary schools. Main sources of data are self-reports prepared by the consultants; interviews and discussion sessions with representatives from the Connecticut Academy; and observations of business meetings, during which consultants, representatives from the Connecticut Academy, and personnel from the Waterbury Public Schools discussed SIST's operations in the Waterbury schools.

In preparation for consultants' completion of self-reports, the principal evaluator developed evaluation questions for consultants to answer and, also, requested that they provide as much detail as possible, including supporting material (i.e., handouts and schedules).

The general plan for SIST gave each consultant responsibility for providing ten days of on-site technical assistance to one or more of the seven elementary schools. The following list presents the building assignments of the SIST consultants, during spring 1999.

CONSULTANT	SPECIALTY	BUILDING
Linda Ball	Mathematics	Bucks Hill
Pamela Barker Jones	Mathematics	Driggs, Hopeville, Walsh
Mj Terry	Mathematics	Chase, Barnard, Wilson
Joseph Cellizza	Language Arts	All seven schools

A. Consultants' Original Plan

What was the original plan for the mathematics and language arts technical assistance?
According to the consultants, the original plan for SIST was to have each consultant provide ten days of technical assistance to the schools they were assigned. During workshops and discussion sessions, consultants would lead grade level discussions, model lessons, and conduct observations of classroom teachers who tried the materials and processes that consultants recommended.

B. Accomplishments and Changes in Plans

What was accomplished by SIST? In the main, consultants' responses to this question were general descriptions. The consultants provided a general accounting for: days of work at each school (day 1, day 2, etc.); narrative description of conditions at each school (e.g., materials, work arrangements, and school personnel); description of workshops that consultants presented alone or in association with other SIST consultants; and description of issues encountered (e.g., lack of substitutes, snow days to make up, response of teachers and principal, shortage of materials and equipment).

The consultants produced a general goal and a plan or outline of possible activities to apply to all buildings. The implementation of this plan was contingent on recommendations and feedback from the teachers. There was also a preliminary plan for the language arts component that included seven steps, topics for discussion, and follow-up activity. Analysis of data collected from teachers and administrators indicates that these participants became aware from the beginning that a main weakness of SIST was the absence of a clear, well-

organized plan, complete with specific objectives that were targeted to the needs of each building

The content of various documents prepared by the consultants suggests that most of the consultants' work was a prompt and more or less effective response to "needs" identified by different teachers during discussion sessions, or it was the consultants' regular use of standard and, in some instances, time-worn workshops. In the previous two sections in this analysis of data, there are numerous critical comments that CRE received on surveys from teachers and principals to support these conclusions about SIST: workshops frequently entailed mundane topics and the consultants' style appeared to be hit-and-miss and informal, rather than an up-to-date, data based, and strategic approach.

Nevertheless, Linda Ball's final report includes substantial information on the identification and assessment of resources—including personnel—at district, school, and grade levels. Likewise, the final reports from Pamela Barker Jones and Mj Terry provide a specific and thoughtful analysis of building-level conditions, including recommendations for the next school year. These documents help to satisfy one of SIST's important commitments to the district, namely, to analyze staffing expertise and resources at the seven identified schools. Central office administrators and building principals should find this documentation to be very useful when planning activities or for purchasing materials for the 1999-2000 school year (For details, see list of recommendations at the end of this section).

If there were significant changes in operations relative to the original plans, why were these changes necessary? The most significant issue reported by consultants was that substitute teachers were either too few in number or they were not available when requested. Thus, without substitute teachers, consultants could not free the regular classroom teachers from their work responsibilities to observe the consultant teaching another classroom or to engage in discussions with other teachers about the workshops or their practice.

Additionally, when a snow day occurred, consultants faced make-up days without substitute teachers. Also, Waterbury's five-day rotating schedule was an issue for the consultants, because they were working in the buildings only on certain days, and not every day of the week. Hence, if school was canceled because of a snow day, all of Monday's special activities were rescheduled for Tuesday, rendering the consultant's plans for Tuesday unworkable.

This recurrent issue with the substitutes stems, at least in part, from SIST's organizational plan, which was to have the consultants work in the elementary schools for only ten days and that these days would be spread from January to June, 1999. If the plan had, instead, been to provide an intensive, sustained technical assistance program, taking place every day over two or three weeks—as recommended by some principals—then the consultants would have been in a better position to respond to exigencies imposed by weather conditions. There also would have been a greater opportunity for building trust between consultant, teachers, and the principal, and greater opportunity for building consistency and depth into the SIST initiative.

C. Overall Effectiveness of SIST

How would you assess the effectiveness of the mathematics and language arts components of this technical assistance initiative? Consultants reported that it was difficult to assess the effectiveness of SIST's mathematics and language arts components. The consultants said that they would defer their assessment of SIST's overall effectiveness because they experienced difficulty with completing some of the planned activities, namely observation of teachers' follow-up activity and team teaching with the staff to determine the extent to which workshops influenced teachers' regular classroom practice. Consultants reported that the teachers tended to resist consultants' observation of their teaching activity. Also, consultants reported receiving responses about their performance from teachers and principals that varied from highly appreciative to highly critical. However, there was no indication from the consultants about the extent or percentage of work that was completed relative to the plan.

Review of consultants' documents and analysis of comments from teachers and principals suggests that another source of the problem with consultants' self-assessment may be the lack of strategic, building-level plans, based upon substantive prior analysis of student performance data, curriculum materials, and teachers' history of professional development. One consultant identified inadequate preplanning as a substantive issue in regard to SIST's implementation.

D. Issues

What are the main issues with the Waterbury SIST? Consultants identified the following issues associated with implementing SIST in the seven elementary schools:

- lack of commitment from the administration at building and district levels
- poor communication between the district and the Connecticut Academy
- poor advance planning between the Connecticut Academy, consultants, principals, and teachers
- inconsistency of SIST's scheduling and operations, due to issues with substitute teachers, show days, late openings, and competing programs
- grade level meetings were not mandatory for all teachers

E. Recommendations

What recommendations can you offer for improvement? Consultants provided the following recommendations for improving SIST's operations in the Waterbury Public Schools for 1999-2000:

District

- Hire a K-8 mathematics coordinator.
- Increase commitments and responsibilities of teachers and administrators in regard to professional development.
- Identify and use lead teachers for curriculum planning and professional development.
- Improve availability and scheduling of substitute teachers.
- Place higher priority on purchase of relevant classroom materials.

SIST

- schedule teachers' inservice activity before the school day begins, after the school day ends, and during the summer months; avoid inservice activity that pulls elementary teachers out of classrooms during regular teaching hours.
- Focus operations on fewer schools and only for regular classroom teachers.
- Design the program so that the consultant is in the school on a sustained, regular, weekly or daily schedule, not on an intermittent schedule.
- Organize workshops by grade levels because the needs and interests of primary school teachers and intermediate level teachers are very different.

4. Discussion of Consultants' Activity

At the beginning of this initiative, representatives from the Connecticut Academy—including Gemma Joseph Lumpkin, consultants, and the evaluator—held an introductory meeting with the assistant superintendent and all seven of the building principals for approximately two hours. During this meeting, the assistant superintendent introduced everyone present, explained the interests of Waterbury Public Schools regarding improvement of students' academic performance, and welcomed assistance from the Connecticut Academy.

Ms. Lumpkin provided an overview of SIST's operations and solicited comments from everyone present. Building principals raised questions about the schedule, availability of substitute teachers, and details of the SIST program.. As a follow-up activity, Ms. Lumpkin and the consultants met with each of the building principals for two hour meetings to provide a more detailed explanation of SIST's operations and the implications for their buildings. Additionally, the SIST consultants attended faculty meetings in an effort to explain the plan to all elementary teachers and to solicit their feedback.

Ms. Lumpkin reported that SIST consultants spent approximately twelve days at each of the elementary schools and worked to cover every grade level. However, she noted that in the future, she would recommend that more days be set aside for SIST. Additionally, she recommended that SIST focus on one or perhaps two grade levels at each school, depending on the size of the school, instead of all elementary grades. Also, Ms. Lumpkin recommended that SIST devote more time to intensive planning at the individual schools, in order to design the program to meet the needs of each building and to help resolve scheduling problems.

Ms. Lumpkin noted that the availability of substitute teachers was a great hindrance to SIST's original implementation plan. The lack of substitutes, she concluded, severely hindered our ability to reach the goals and objectives of the original plan. As a result, the plan was reduced to classroom presentations and limited group sessions.

Two consultants, Mj Terry and Pamela Barker Jones, provided documentation in their reports regarding their review of the CMT data, in preparation for or during delivery of their SIST workshops. Reports from the other SIST consultants either do not mention the review of CMT data or, in one case, make several references to the importance of teachers using the CMT goals and objectives when planning to teach.

However, the documentation provided by the consultants regarding their decision-making process suggests that the procedures for data based decision-making for this technical assistance program have not been established beforehand by the consultants or by the Connecticut Academy. Otherwise, if these procedures were in place beforehand, they were not applied consistently nor rigorously by the consultants.

Analysis of data from the surveys and interviews reveals that teachers and administrators identified planning, personnel, and organization as the three main weaknesses of the SIST initiative.

Thus, CRE recommends that the Connecticut Academy establish definitions, parameters, materials, and routine procedures for consultants to use when providing on-site technical assistance on CMT data based decision-making to teachers and administrators. The result should not be so structured as to be an obstacle to improving a building's instructional program. However, there is nevertheless a real need for an intervention program to have a defined, effective, and working system for data based decision-making and follow-up activity—including properly aligned and consistent curriculum development, assessment, and professional development.

Additionally, CRE recommends that the Connecticut Academy develop a working model for building-level processes, operations, and decision-making, with specific reference to roles of all significant participants, including regular classroom teachers, lead teachers, specialists, principals, central office administration, substitute teachers, and consultants.

LESSONS LEARNED

The main lessons learned in this initiative are:

- the individual school building, staff, students, and principal must constitute the focal unit for SIST's planning, design, scheduling, operations, personnel, and evaluation;
- planning must begin well in advance of the first day of school—during the preceding summer or spring of previous school year;
- principals and lead teachers must be directly involved in SIST's planning, development, and—when feasible—its operations, in order to promote collaboration at all levels in the school's organization, mutual ownership, and accountability;
- public announcements about the initiative should occur after staff and administration have been alerted to the decision to include SIST in a building's work schedule;
- consultants must have strengths in areas of critical need, including expertise with teaching in specific grade levels and with academic skills, and they must provide workshops and other services that are valued highly by the teachers and principals;
- the School Board, central office, teachers, principals, consultants, and the Connecticut Academy must see SIST as a long-term, intensive, thoughtful, and process-oriented approach to school improvement;
- patience, trust, consistency and coherence, determination to succeed, and accountability are critically important values to assure short-term and long-term success—trust between teachers, principals, and consultants is essential.

SUMMARY

The following chart presents a summary of CRE's responsibilities to the Waterbury Public Schools and to the Connecticut Academy. Also included in this chart are the status of each task at the end of the term and a brief statement regarding the results of each task.

TASK	STATUS	RESULT
Assess the overall performance of the existing instructional program.	Completed	Documentation shows schools need ongoing strategic technical assistance.
Measure the effectiveness of the SIST concept	Completed	Concept is sound. However, SIST will benefit from improving: planning, organization, scheduling, communications, and personnel.
Provide specific, written performance measures and benchmarks for subsequent qualitative and quantitative assessment.	Completed	See analysis of data and recommendations in earlier sections of this report and below.

This evaluation study of the SIST initiative in the seven identified elementary schools of the Waterbury Public Schools demonstrates that a data based approach to decision-making is a highly useful, strategic approach to educational programming. It is a procedure that Waterbury's school administrators and teachers prefer, rather than continuing to rely on obsolete methods. Also, the first-year implementation of a data based decision-making process—like any other important and useful innovation—entails complications, necessitates refinements, and requires time and consistent application, in order to realize success. Thus, it is not surprising that the analysis of data shows mixed results overall.

From Waterbury's teachers and administrators, SIST received an overall 60% performance rating. Similarly, consultants from the Connecticut Academy expressed disappointment that the program had not gone as smoothly as they had expected. However, the SIST idea for providing technical assistance to elementary schools is recognized by all the educators as a very sound approach to improving students' learning, in general, and for improving their performance on the CMT, in particular. Despite the issues regarding SIST's implementation, it is nonetheless a program that will benefit the district. Thus, the assistant superintendent should be commended for his foresight and risk-taking.

The analysis of data reveals that teachers and administrators want quality technical assistance with professional development. Additionally, they recognize that the usual way of providing inservice—casual programs, top-down decision-making, or picking and choosing from the latest fads—is not working to the benefit of students or teachers. Thus, everyone agrees that a high quality, strategic approach, based upon analysis of student CMT performance data, offers the best and the most up-to-date approach for resolving Waterbury's continuing issue of low student performance data with basic skills.

Data analysis shows that SIST got off to a rocky start with the assessment component, because the consultants used a presentation style that was offensive to the local educators. Additionally, documentation from teachers and administrators shows that the implementation of math component was highly satisfactory to the educators in two schools, modestly satisfactory to many teachers and administrators in the other five schools, and not satisfactory to a smaller group of teachers and administrators across the seven schools. The language arts component received low marks from a majority of participants.

Educators who found SIST to be satisfactory recognized two math consultants as the source of their conclusion about SIST's overall effectiveness. In the opinion of these teachers and administrators, the two consultants presented interesting and useful workshops. Nevertheless, the satisfied educators provided a list of critical comments about the SIST initiative that matched very closely the criticism that CRE received from other educators, who were not satisfied with the program. Additionally, the satisfied educators said that, if SIST revises its program consistent with their recommendations, they might look positively on its continuation in their school in the future.

Educators who were not satisfied with SIST reported that the assessment component, the math and language arts components, and/or the language arts component were the source of their disappointment. The main issues for these individuals were that the consultants used out-of-date material, they were not familiar with grade level differences, they did not coordinate their inservice with building needs, and they gave lackluster presentations. The ongoing problem with too few or no substitute teachers was frustrating for everyone concerned with this initiative, including the consultants. Many unsatisfied educators said that they would prefer to have grade level meetings than to devote time and money to ineffective consultants.

CRE's evaluation of SIST shows strong agreement between teachers, administrators, and SIST consultants regarding the strengths of this initiative, its start-up problems, and the best solutions to those problems. Educational innovations always encounter resistance from various sources, suffer setbacks, and have to regroup or to reorganize for a more effective approach to the situation—especially in their first year of operations. Thus, CRE strongly recommends that both parties to this contract exploit what works best and continue working together to improve teaching and learning in Waterbury's elementary schools. At the conclusion of this report, there are specific recommendations for improvement.

At this time, the Connecticut Academy and the Waterbury Public Schools should collaborate to clarify SIST's purpose and to establish rigorous and specific objectives, processes, and standards for the initiative. In summer 1999, a year-long technical assistance program should resume in two or three of the seven original elementary schools. By fall 1999, the revised SIST program should attain higher approval ratings from teachers and principals. It should also provide greater assurance of success for teachers and students. Once the Waterbury model of technical assistance has achieved definition and has demonstrated its effectiveness in these schools, it should be applied with appropriate adjustments on a scheduled basis in other elementary schools in Waterbury.

In conclusion, the lessons learned are the best results of this initiative. Patience, mutual trust, consistency, coherence, accountability, and determination to succeed must continue as the basic principles guiding SIST's development. The Connecticut Academy's reputation for providing quality service and materials to improve mathematics and science education is well-recognized statewide. Administrators and teachers in the Waterbury Public Schools express a commitment to improving students' CMT performance through the strategic professional development of elementary school teachers. Furthermore, everyone involved with this initiative recognizes that strategic planning and operations—informed by a current and explicit analysis of essential data—are critical elements for improving the school's curriculum, assessment practices, and professional development. With these recommendations in mind, CRE strongly urges continuation of SIST in the Waterbury Public Schools.

RECOMMENDATIONS

The following recommendations come from surveys and interviews with Waterbury's teachers and principals and from reports and meetings with the consultants, who worked for the Connecticut Academy. Additionally, CRE provides a number of recommendations for analysis of CMT data and SIST program changes, in order to support an effective technical assistance program.

1. Analysis of CMT Data

- Analyze CMT data by cohort groups of students within buildings and, to the extent possible, within the district, in order to study the long-term impact of intervention strategies and to assess the merit of different intervention strategies.

- Hire a consultant—who is familiar with CMT data, urban education issues, curriculum, instruction, and assessment—to develop graphical representations and related materials pertaining to building-level student performance data for use by teachers and principals when planning for technical assistance.

- Focus on the K-5 students who do not change schools, using as the minimum criterion of success for the SIST program 100% of these students scoring at or above state goal. Develop a similar plan for all other children, based on recommendations from the study of student mobility issues in Waterbury.

- Incorporate appropriate performance-based assessment instruments to monitor all children's development of specific skills in grades K-5, including relevant follow-up methods and materials for developmental and remedial instruction.

- Use the yearly analysis of CMT data (as suggested in this report) to identify specific skills for special age/grade appropriate emphasis in each grade K-5, using 85 percent mastery (state goal) on all performance measures as the main criterion of success.

2. SIST Program

- Maintain regular communications with central office administrators in regard to SIST's operations, in general, and to feedback from participants, specifically.

- Emphasize what works. Demonstrate to teachers the methods and materials that help urban children to learn reading, writing, and/or mathematics.

- Organize and facilitate a sufficient number of discussion sessions, during which teachers describe common issues and propose effective solutions.

- Monitor on a daily basis the activities and processes of consultants, in order to ensure quality performance, including prompt response to issues and problems. Set the goal for each building at 100% participant satisfaction that SIST provides excellent service.

- Consult with teachers and principals at the earliest opportunity to determine building expectations and needs, and continue consulting on a regular basis throughout the initiative.

- Focus on intensive, strategic, age/grade appropriate developmental programs in math and reading/study skills for Pre-K through third grade. Set 85 percent mastery of specific skills (state goal) as the criterion of success.

- Provide follow-up developmental and remedial programs in math and reading/study skills for fourth and fifth grade students. Set 85 percent mastery of specific skills (state goal) as the criterion of success. Monitor closely for age-appropriate development and adjust instruction based on students' needs.

- Transition district administrators, principals, and lead teachers within three years to full responsibility for analysis of CMT data and related documentation, in order to support data based decision-making at district and building levels.

- Hire consultants to study and report on student mobility issues in Waterbury as they relate to curriculum, instruction, and assessment. Develop recommendations for policy changes, general program development, and intervention strategies in order to mitigate the adverse effects of extremely high student mobility rates.

3. Personnel

- During 1999 summer, hire a consultant to study CMT data and to work with district administrators, principals, and lead teachers to identify specific skills as objectives for SIST. Select methods, materials, equipment, and personnel to accomplish the objectives.

- Hire exemplary technical assistance providers, with qualifications—including practical experience—in pre-kindergarten and kindergarten and in grades 1, 2, 3, 4, and 5.

- Hire a consultant for the assessment component, who has substantial, direct experience with analysis of CMT data for data based decision-making, and who has the skill to work effectively with teachers and administrators.

- Insist on high quality performance by all consultants and ensure fit of personnel and program with individual schools.

- Improve availability and scheduling of substitute teachers.

4. Operations

- Conduct intensive study of CMT data and other relevant documentation, in order to prepare a clear, formal, consistent, and data based plan for professional development that is specific to each building.

- Disseminate the technical assistance plan to the teachers and principal, in order to support direct, open, and continuous communication with all participants.

- Provide sustained, consistent, strategic technical assistance (have principal and lead teachers help determine the time frame and schedule of operations).

- Organize consultants' work to include presenting workshops that are consistent with the plan, collaborating with teachers, working hand-in-hand with regular classroom teachers, serving as grade level resource teachers, and identifying lead teachers to assist with implementing the program.

- Organize workshops by age/grade levels, because the needs and interests of pre-kindergarten, kindergarten, primary school, and intermediate level teachers are very different.

5. Evaluation and Assessment

- Continue the independent external evaluation of the SIST initiative, in order to describe, measure, and assess its performance during this formative period.

BIOGRAPHICAL SKETCHES

Curriculum Research and Evaluation is a firm that is devoted to research and development of programs in the field of education. CRE's specialities are: (1) to provide services in order to evaluate the quality of education programs for private business and industrial companies, public and private funding agencies, and schools; and (2) to develop and guide the implementation of curriculum and instruction.

Charles Bruckerhoff is Principal Evaluator and Research Associate for Curriculum Research and Evaluation. He received his doctorate from the University of Wisconsin. His research interests are curriculum theory and development, philosophy of education, effects of public policy on the classroom teacher, and school restructuring. He is the author of *Between Classes: Faculty Life at Truman High* and has written articles on curriculum development, qualitative research, urban collaboratives, and disadvantaged youth.

Theresa Bruckerhoff is Operations Manager and Research Associate for Curriculum Research and Evaluation. She has a B.S. in Elementary Education and a M.S. in Curriculum and Instruction. She has sixteen years of teaching experience ranging from preschool to the middle school levels. She taught in gifted programs, special education programs, and is an experienced classroom teacher. Most recently she has held executive board positions for child care centers and a nursery school. Currently, she studies state and national programs for teachers' professional development and school restructuring.

APPENDIX

Interview with Building Principal

Interview with Assistant Superintendent

Waterbury Teachers Formative Evaluation

Waterbury Public Schools
and
Connecticut Academy for Education
SIST

Date:	School:	Asst. Superintendent:
Time:		

INTERVIEW WITH ASSISTANT SUPERINTENDENT

1. Are the mathematics and language arts curricula in Waterbury elementary schools comprehensive, that is, developed fully for all grades?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

2. Are the elementary mathematics and language arts curricula based on the Curriculum Frameworks developed by the Connecticut State Department of Education?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

3. Are the elementary teachers' instructional practices in mathematics and language arts consistent with the curricula in each of these areas?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

4. What percentage of elementary faculty transferred out of schools during:
   1996-97? ____%

   1997-98? ____%

   1998-99? ____%

5. How would you assess current student performance in mathematics, as measured by the CMT?

6. How would you assess current student performance in language arts, as measured by the CMT?

7. What is your overall assessment of SIST? In other words, how effective was this professional development program at meeting elementary teachers' instructional needs?

8. Did SIST accomplish its purposes or objectives at a satisfactory level? ○ Yes ○ No
If no, please explain.

9. To what extent did the mathematics component accomplish its purposes?

10. To what extent did the language arts component accomplish its purposes?

11. How would you describe the teachers' and principals' response to the mathematics component of SIST?

12. How would you describe the teachers' and principals' response to the language arts component of SIST?

13. What are the most valuable (i.e., useful) aspects of SIST?

14. What, if any, are the weaknesses or issues associated with SIST?

15. Will you rely on SIST for Waterbury's elementary level professional development next school year?

16. What recommendations can you offer to improve the SIST program for the Waterbury Public Schools?

Waterbury Public Schools
and
Connecticut Academy for Education
SIST

Date:	School:	Principal:
Time:		

INTERVIEW WITH BUILDING PRINCIPAL

1. Are the mathematics and language arts curricula in your building comprehensive, that is, developed fully for all grades?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

2. Are the mathematics and language arts curricula based on the Curriculum Frameworks developed by the Connecticut State Department of Education?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

3. Are the teachers' instructional practices in mathematics and language arts consistent with the curricula in each of these areas?
   Mathematics ○ Yes ○ No
   If no, please explain.

   Language Arts ○ Yes ○ No
   If no, please explain.

4. What percentage of your faculty transferred out of schools during:
   1996-97? ____%

   1997-98? ____%

   1998-99? ____%

5. How would you assess current student performance in mathematics, as measured by the CMT?

6. How would you assess current student performance in language arts, as measured by the CMT?

7. What is your overall assessment of SIST? In other words, how effective was this professional development program at meeting elementary teachers' instructional needs?

8. Did SIST accomplish its purposes or objectives at a satisfactory level? O Yes O No
If no, please explain.

9. To what extent did the mathematics component accomplish its purposes?

10. To what extent did the language arts component accomplish its purposes?

11. How would you describe the teachers' response to the mathematics component of SIST?

12. How would you describe the teachers' response to the language arts component of SIST?

13. What are the most valuable (i.e., useful) aspects of SIST?

14. What, if any, are the weaknesses or issues associated with SIST?

15. Will you rely on SIST for your teachers' professional development next school year?

16. What recommendations can you offer to improve the SIST program for the Waterbury Public Schools?

Education Program Improvement

Waterbury Public Schools

and

Connecticut Academy for Education

TEACHER'S FORMATIVE EVALUATION

Dear Professional Educator,

Curriculum Research & Evaluation (CRE) is an independent external evaluator with responsibility for assessing the Education Program Improvement initiative by the Connecticut Academy for Education and the Waterbury Public Schools. Please take a few minutes to complete this evaluation of the School Improvement Support Team (SIST) in your building. Use the SASE for its return to CRE. Your professional opinion is very important for guiding the project's current plans and for measuring its overall effectiveness. All participants in this study will be anonymous and all contributions will remain confidential. Thank you very much in advance for your cooperation and assistance.

Sincerely,

Charles Bruckerhoff

Principal Evaluator, CRE

Demographic Information

Building assignment: _____

Position: ☐ Teacher ☐ Administrator

Gender: ☐ Female ☐ Male

Grade(s) currently assigned: ☐ Pre-K ☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

Area(s) of concentration (if appropriate): _____

Highest degree: ☐ BA/BS ☐ MA/MS ☐ MA/MS + 15 credits ☐ Doctorate ☐ Pursuing advanced graduate degree

BEST certified: ☐ Yes ☐ No

Other certifications: _____

Years of teaching: Years of administration (if appropriate):

Level of Participation

Indicate how many and what kind of initial, small SIST meetings you attended.	Number of Meetings	Grade Level
	_____	_____
	_____	_____
	_____	_____

How many SIST workshops for math did you attend? _____ ○ Not applicable

How many SIST workshops for language arts did you attend? _____ ○ Not applicable

How many times did you take the opportunity to watch the SIST math consultant teach? _____ ○ Not applicable

How many times did you take the opportunity to watch the SIST language arts consultant teach? _____ ○ Not applicable

How often did you meet with the consultants to discuss the workshop's implications for your classroom teaching?

Overall Assessment of SIST Workshops

The SIST workshops were:	Very Strongly Agree	Agree	Disagree	Very Strongly Disagree	No Opinion
Up-to-date?	○	○	○	○	○
Timely?	○	○	○	○	○
Well-organized?	○	○	○	○	○
Well-managed?	○	○	○	○	○
Effectively implemented?	○	○	○	○	○
Addressed my instructional needs?	○	○	○	○	○
Addressed the instructional needs of other teachers in this building?	○	○	○	○	○

How would you assess the overall effectiveness of these workshops? ○ Excellent ○ Good ○ Average ○ Poor ○ No Opinion

Describe your overall impression of the SIST math and language arts workshops as separate entities.

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(Over please)

SIST Consultant's Effectiveness	Very Strongly Agree	Agree	Disagree	Very Strongly Disagree	No Opinion
The SIST consultants were:					
Effective with presentation skills?	○	○	○	○	○
Enthusiastic about the topics?	○	○	○	○	○
Eager to help you?	○	○	○	○	○
Well-prepared, in regard to relevant content knowledge?	○	○	○	○	○
Equipped with good teaching ideas—for your purposes?	○	○	○	○	○
Effective with classroom modeling?	○	○	○	○	○
Effective when interacting with the variety of people in the school?	○	○	○	○	○
Effective when demonstrating use of manipulatives for teaching?	○	○	○	○	○
Effective when demonstrating use of instructional technology, such as calculators?	○	○	○	○	○
Effective when adapting to changing schedules and other issues at the building?	○	○	○	○	○

Impact on Teaching	Very Strongly Agree	Agree	Disagree	Very Strongly Disagree	No Opinion
The SIST workshops:					
Were filled with new methods and materials?	○	○	○	○	○
Contained methods and materials that you already knew, but they were presented in a fresh and more understandable format?	○	○	○	○	○

Have you started using some of the methods and materials you encountered in the workshops? ○ Yes ○ No

How much of the SIST methods and materials do you plan to use next year? ○ 100% ○ 75% ○ 50% ○ 25% ○ None

Assess the workshops' contribution to your professional development. ○ Excellent ○ Good ○ Average ○ Poor ○ No Opinion

Impact on Students' Learning

What do you expect will be the most important contribution(s) to students' learning from your use of SIST workshop materials and methods?

Do you have any evidence, thus far, that these methods and materials are improving students' achievement? ○ Yes ○ No

Please explain the impact on students' learning.

How do students respond to your use of the SIST workshop methods and materials?

Contributions to Building-Level Improvement	Very Strongly Agree	Agree	Disagree	Very Strongly Disagree	No Opinion
The SIST workshops:					
Increased building-level expectations regarding professional development?	○	○	○	○	○
Created a very favorable response among all teachers?	○	○	○	○	○
Created a very favorable response from the administration?	○	○	○	○	○
Created a strong expectation to continue SIST workshops in the future?	○	○	○	○	○

Assess the overall building-level response to SIST workshops. ○ Excellent ○ Good ○ Average ○ Poor ○ No Opinion

Should SIST workshops continue in the immediate future? ○ Yes ○ No

Please explain your response to continuing SIST workshops.

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(Next page please)

Overall Assessment of Mathematics Workshops

1. What are the strengths of the School Improvement Support Team (SIST)?

2. What, if any, are the weaknesses, shortcomings, or outstanding issues of SIST?

3. What specific recommendations can you offer for improving SIST in these areas:
   Plan for Professional Development

   Operations and Performance

   Scheduling

   Other

Overall Assessment of Language Arts Workshops

1. What are the strengths of the School Improvement Support Team (SIST)?

2. What, if any, are the weaknesses, shortcomings, or outstanding issues of SIST?

3. What specific recommendations can you offer for improving SIST in these areas:
   Plan for Professional Development

   Operations and Performance

   Scheduling

   Other